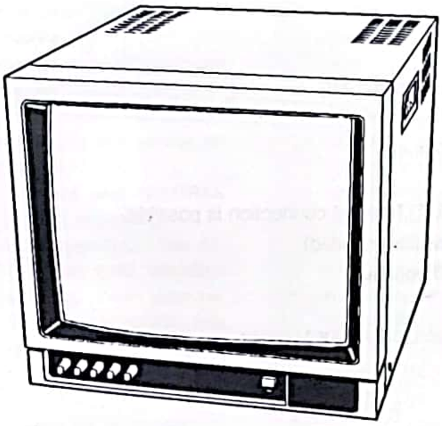
JVC

SERVICE MANUAL

COLOR VIDEO MONITOR

TM-1400U(CV)

BASIC CHASSIS
TM



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No.50353
Jan.1990

SPECIFICATIONS

Item	Content
Dimensions	36.5cm(W)×39.4cm(D)×33.4cm(H)
Weight	15.9kg
Color system	NTSC system
Power Input	AC 120V,60Hz
Power consumption	Max. 1.05A,Avg. 60W
Picture Tube	14"(measured diagonally),90° deflection,in-Line gun,data grade tinted CRT tri-dot pitch 0.499mm
Screen size	284mm(H)×213mm(V)
Scanning frequency	(H) 15.75KHz (V) 60Hz
High voltage	24kV(at zero beam current)
Horizontal resolution	More than 450 lines
VIDEO IN/OUT	BNC×2(IN/OUT),Bridged connection is possible. (Termination switch provided) VS-1Vp-p,75Ω,negative
ACCESSORY	Power cord(approx. 2.4m)×1

Design & specification subject to change without notice.

SAFETY PRECAUTIONS

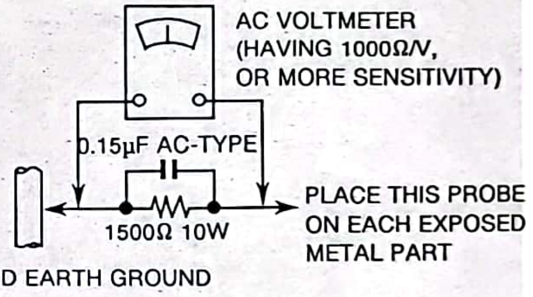
1. The design of this product contains special hardware, many circuits and components specially for safety purposes. For continued protection,no changes should be made to the original design unless authorized in writing by the manufacturer. Replacement parts must be identical to those used in the original circuits. Service should be performed by qualified personnel only.
2. Alterations of the design or circuitry of the products should not be made. Any design alterations or additions will void the manufacturer's warranty and will further relieve the manufacturer of responsibility for personal injury or property damage resulting therefrom.
3. Many electrical and mechanical parts in the products have special safety-related characteristics. These characteristics are often not evident from visual inspection nor can the protection afforded by them necessarily be obtained by using replacement components rated for higher voltage, wattage, etc. Replacement parts which have these special safety characteristics are identified in the parts list of Service manual. **Electrical components having such features are identified by shading on the schematics and by (⚠) on the parts list in Service manual.** The use of a substitute replacement which does not have the same safety characteristics as the recommended replacement part shown in the parts list of Service manual many create shock, fire, or other hazards.
4. **Use isolation transformer when hot chassis.**
   The chassis and any sub-chassis contrained in some products are connected to one side of the AC power line. An isolation transformer of adequate capacity should be inserted between the product and the AC power supply point while performing any service on some products when the HOT chassis is exposed.
5. **Don't short between the LIVE side ground and NEUTRAL side grounding or EARTH side ground when repairing.**
   Some model's power circuit is partly different in the GND. The difference of the GND is shown by the LIVE (⊥) side GND, the NEUTRAL (⏚) side GND and EARTH (⊕) side GND. Don't short between the LIVE side GND and NEUTRAL side GND or EARTH side GND and never measure with a measuring apparatus (oscilloscope etc.) the LIVE side GND and NEUTRAL side GND or EARTH side GND at the same time.
   If above note will not be kept, a fuse or any parts will be broken.
6. If any repair has been made to the chassis, it is recommended that the B_1 setting should be checked or adjusted (See ADJUSTMENT OF B_1 POWER SUPPLY).
7. The high voltage applied to the picture tube must conform with that specified in Service manual. Excessive high voltage can cause an increase in X-Ray emission, arcing and possible component damage, therefore operation under excessive high voltage conditions should be kept to a minimum, or should be prevented. If severe arcing occurs, remove the AC power immediately and determine the cause by visual inspection (incorrect installation, cracked or melted high voltage harness, poor soldering, etc.). To maintain the proper minimum level of soft X-Ray emission, components in the high voltage circuitry including the picture tube must be the exact replacements or alternatives approvided by the manufacturer of the complete product.
8. Do not check high voltage by drawing an arc. Use a high voltage meter or a high voltage probe with a VTVM. Discharge the picture tube before attempting meter connection, by connecting a clip lead to the ground frame and connecting the other end of the lead through a 10kΩ 2W resistor to the anode button.
9. When service is required, observe the original lead dress. Extra precaution should be given to assure correct lead dress in the high voltage circuit area. Where a short circuit has occurred, those components that indicate evidence of overheating should be replaced. Always use the manufacturer's replacement components.
10. **Isolation Check**
    (Safety for Electrical Shock Hazard)
    After re-assembling the product, always perform an isolation check on the exposed metal parts of the cabinet (antenna terminals, video/audio input and output terminals, Control knobs,metal cabinet, screwheads, earphone jack, control shafts, etc.) to be sure the product is safe to operate without danger of electrical shock.

(1) **Dielectric Strength Test**
The isolation between the AC primary circuit and all metal parts exposed to the user, particularly any exposed metal part having a return path to the chassis should withstand a voltage of 1100V AC (r.m.s.) for a period of one second.
(. . . . Withstand a voltage of 1100V AC (r.m.s.) to an appliance rated up to 120V, and 3000V AC (r.m.s.) to an appliance rated 200V or more, for a period of one second.)
This method of test requires a test equipment not generally found in the service trade.

(2) **Leakage Current Check**
Plug the AC line cord directly into the AC outlet (do not use a line isolation transformer during this check.) Using a "Leakage Current Tester", measure the leakage current from each exposed metal part of the cabinet, particularly any exposed metal part having a return path to the chassis, to a known good earth ground (water pipe, etc.). Any leakage current must not exceed 0.5mA AC (r.m.s.).

- **Alternate Check Method**

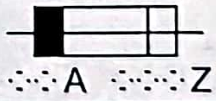
Plug the AC line cord directly into the AC outlet (do not use a line isolation transformer during this check.). Use an AC voltmeter having 1,000 ohms per volt or more sensitivity in the following manner. Connect a 1,500Ω 10W resistor paralleled by a 0.15μF AC-type capacitor between an exposed metal part and a known good earth ground (water pipe, etc.). Measure the AC voltage across the resistor with the AC voltmeter. Move the resistor connection to each exposed metal part, particularly any exposed metal part having a return path to the chassis, and measure the AC voltage across the resistor. Now, reverse the plug in the AC outlet and repeat each measurement, Any voltage measured must not exceed 0.35V AC (r.m.s.). This corresponds to 0.5mA AC (r.m.s.).



11. **High voltage hold down circuit check.**
    After repair of the high voltage hold down circuit, this circuit shall be checked to operate correctly.
    See item **"How to check the high voltage hold down circuit"**.

■ ONLY CANADA

This mark shows a fast operating fuse, the letters indicated below show the rating.



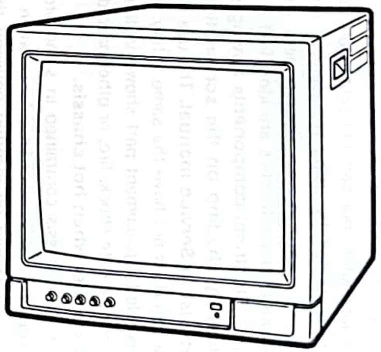
OPERATING INSTRUCTIONS

INSTRUCTIONS

JVC®

TM-1400U(CV)

COLOR VIDEO MONITOR



For Customer Use:

Enter below the Serial No. which is located on the rear of the cabinet. Retain this information for future reference.

Model No. TM-1400U(CV)

Serial No.

Thank you for purchasing a JVC color video monitor. Your new monitor will provide superior quality pictures and incorporates many useful functions.
To ensure a complete understanding of the monitor and to extend its service life, please read all instructions in this booklet and keep it in a safe place for future reference.

FEATURES

- **14-Inch data-grade CRT, together with a comb filter for pictures with a horizontal resolution of more than 450 lines.**
- **Video input terminal with bridged connection capability, convenient monitoring between two video sources when dubbing.**
- **Mountable in a standard EIA rack with optional rack mount adapter RK-150E. (For mounting, refer to the Instruction manual of the RK-150E.)**

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Safety Precautions 2
Controls and Connectors 4
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SAFETY PRECAUTIONS

CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK,
DO NOT REMOVE COVER (OR BACK).
NO USER-SERVICEABLE PARTS INSIDE.
REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.

The lightning flash with arrowhead symbol, within an equilateral triangle is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.

The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

In order to prevent any fatal accidents caused by misoperation or mishandling of the monitor, be fully aware of all the following precautions.

WARNINGS

To prevent fire or shock hazard, do not expose this monitor to rain or moisture.
Dangerous high voltages are present inside the unit. Do not remove the back cover of the cabinet.
When servicing the monitor, contact qualified service personnel. Never try to service it yourself.

INFORMATION

Caution: Changes or modification not approved by JVC could void the user's authority to operate the equipment.

NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

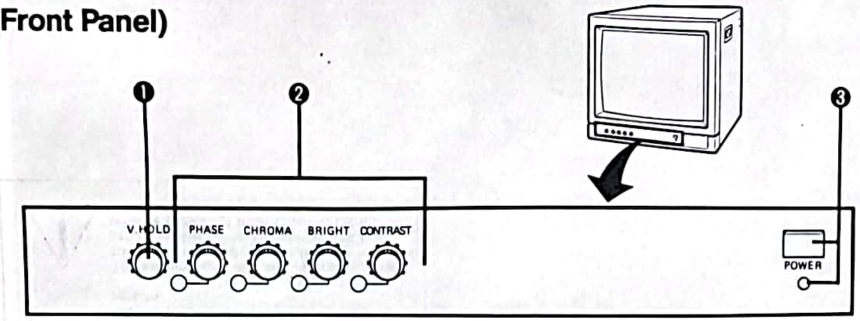
This monitor is equipped with a 3-blade grounding-type plug to satisfy FCC rule. If you are unable to insert the plug into the outlet, contact your electrician.

PRECAUTIONS

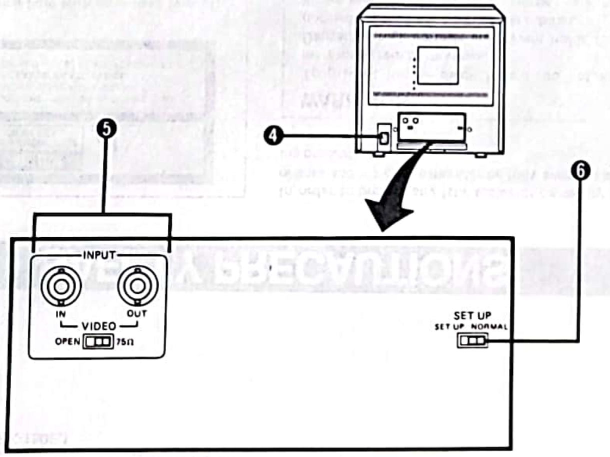
- Use only the power source specified on the rating label located on rear of the cabinet.
- When not using this unit for a long period of time, or when cleaning it, be sure to disconnect the power plug from the AC outlet.
- Do not allow anything to rest on the power cord. And do not locate this unit where people will tread on the cord.
- Do not overload wall outlets or power cords as this can result in a fire or electric shock.
- Avoid using this unit under the following conditions:
  - in extremely hot, cold or humid places,
  - in dusty places,
  - near appliances generating strong magnetic fields,
  - in places subject to direct sunlight, and
  - in badly ventilated places.
- Do not cover the ventilation slots while in operation as this could obstruct the required ventilation.
- When dust accumulates on the screen surface, clean with a soft cloth.
- Unplug this unit from the AC outlet and refer servicing to qualified service personnel under the following conditions:
  - When the power cord is frayed or plug is damaged.
  - If liquid has been spilled into the unit.
  - If the unit does not operate normally following the operating instructions.
  - If the unit has been dropped or the cabinet has been damaged.
  - When the unit exhibits a distinct change in performance.
- Do not attempt to service this unit yourself as opening or removing covers may expose you to dangerous voltage or other hazards. Always refer servicing to qualified service personnel.
- When replacement parts are required, have the service personnel verify in writing that the replacement parts he uses have the same safety characteristics as the original parts. Use of manufacturer's specified replacement parts can prevent fire, shock, or other hazards.
- Upon completion of any servicing or repair to this unit, please ask the service personnel to perform the safety check described in the manufacturer's service literature.
- When this unit reaches the end of its useful life, improper disposal could result in a picture tube implosion. Ask qualified service personnel to dispose of this unit.

CONTROLS AND CONNECTORS

(Front Panel)



(Rear Panel)



❶ V. HOLD control
Turn the adjust the vertical synchronization of the picture.

❷ Picture controls
Use to optimize the picture. The center click position of each control is its standard setting. This standard setting can be varied (preset) by turning the SUB control screws at the side of the controls. Use a screwdriver to turn the SUB controls.

- **PHASE control**
  Turn to adjust the picture hue. Adjust with reference to skin color.
- **CHROMA control**
  Turn to adjust the color density of the picture to your preference.
- **BRIGHT control**
  Turn to adjust the picture brightness to your preference.
- **CONTRAST control**
  Turn to adjust the picture contrast to your preference.

❸ POWER switch/indicator
Pressing this switch turns the power on; the indicator lights. Pressing this switch again turns the power off; the indicator goes off.

❹ Power input connector
Connect to an AC outlet with the provided power cord.

❺ INPUT connectors/Termination switch
Input connector for composite video signal and output connector for bridge-connected signal

IN	: When inputting a signal
OUT	: For bridged connection

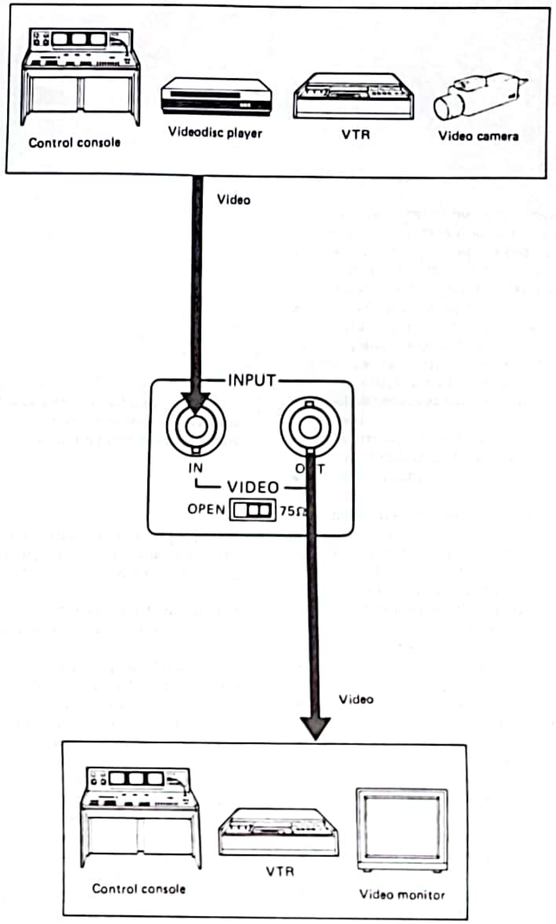
Setting the termination switch

75 Ω	: When there is only an input signal
OPEN	: For bridged connection

❻ SET UP switch
Do not reset this switch. It is for service personnel only.

CONNECTIONS

- Be sure to disconnect the power plug from the AC outlet before connecting to other equipment.
- Also refer to the instruction manual of the equipment to be connected.

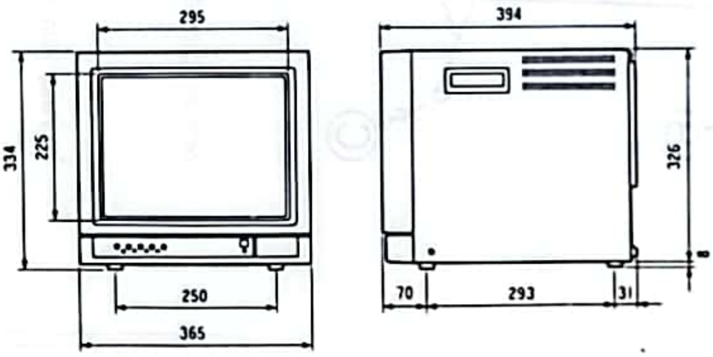


- When using any of the OUT connectors (bridged output), set its termination switch to "OPEN".

SPECIFICATIONS

Type : Color video monitor
Color system : NTSC system
CRT : 14" (measured diagonally), 90° deflection, in-line gun, data-grade tinted CRT, dot pitch 0.499 mm
Screen size (H x V) : 284 x 213 mm
Scanning frequency : (H) 15.75 kHz
(V) 60 Hz
Horizontal resolution : More than 450 lines
Power requirement : AC 120 V, 60 Hz
Power consumption : Max. 1.05 A, Avg. 60 W
INPUT : VIDEO–BNC x 2
VS–1 Vp-p, 75 Ω, negative
Bridged connection possible
(Termination switch provided)
Weight : 15.9 kg
Accessory : Power cord (approx. 2.4 m) x 1

Dimensions (Unit: mm)



Design and specifications subject to change without notice.

SPECIFIC SERVICE INSTRUCTIONS

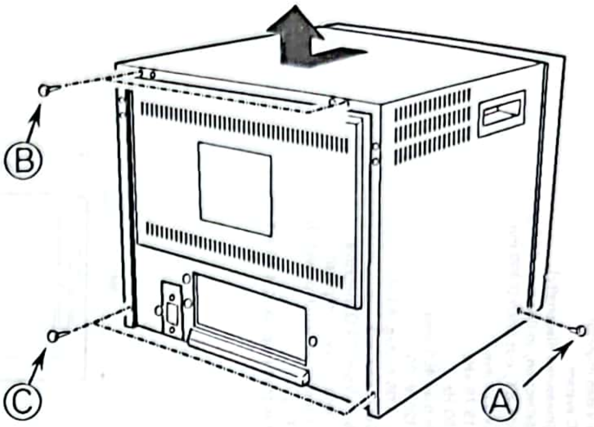
DISASSEMBLY PROCEDURE

1. Method of removing the top cover

(1) Remove the two screws Ⓐ in Fig. 1.

(2) Remove the respectively two screws Ⓑ and Ⓒ.

(3) By pulling the cover a little bit backward, dismount the cover as indicated by an arrow.



Also remove the screw on the opposite side.

Fig. 1

2. Method of dismounting the rear cover

- Dismount the top cover.

(1) Remove the two screws Ⓓ in Fig. 2-1.

(2) Pull the rear cover right upward until it stops as indicated by the arrow, and dismount the cover.

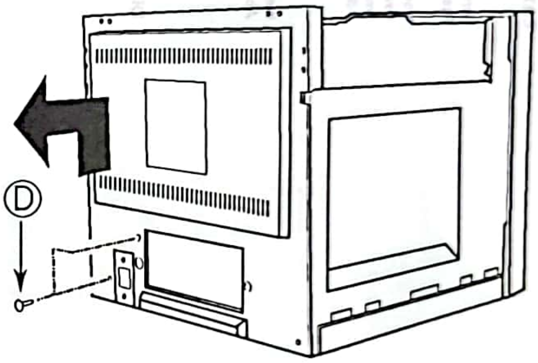


Fig. 2-1

For assembly,

(1) Since the four positions Ⓔ in Fig. 2-2 are hooked, align the hooks straight and let them move down.

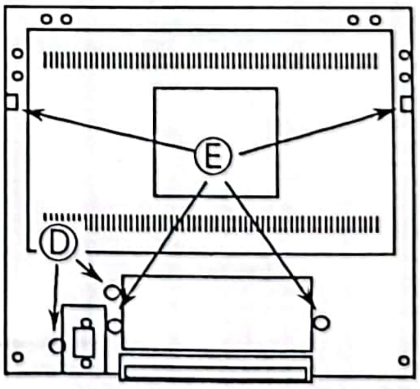


Fig. 2-2

3. Method of dismounting Input PCB

- Dismount the top cover.
- Dismount the rear cover.

(1) Remove the three screws Ⓕ in Fig. 3.

(2) Remove the GND wire.

(3) When the two hooks between the Main and Input PCBs are removed, the Input PCB will be dismounted.

(4) Dismount the connectors, etc. as required.

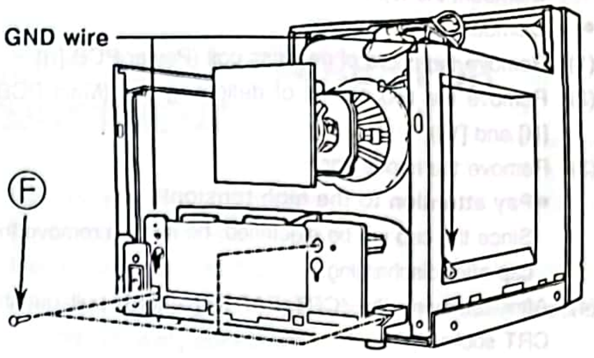


Fig. 3

4. Method of dismounting Power PCB

- Dismount the top cover.

(1) Remove the wire clamp fixing the transformer on the Power PCB and PCB holder.

(2) Remove the four screws Ⓖ in Fig. 4 and dismount the PCB holder.

(3) Remove the two screws Ⓗ.

(4) After raising the Power PCB once, pull the lower part of the PCB outward and dismount the PCB.

(5) Dismount the connectors, etc. as required.

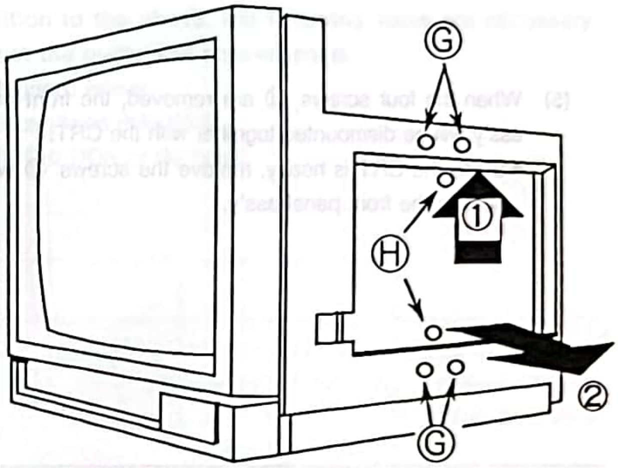


Fig. 4

5. Method of checking the Main PCB

- Dismount the top cover.
- Dismount the rear cover.

(1) Set the TV set sideways as shown in Fig. 5. In this case, lay soft cloth, etc. under the set in advance to prevent any damage to the exterior part.

(2) Remove the four screws Ⓘ and dismount the bottom lid.

(3) Shift the Main PCB as required.

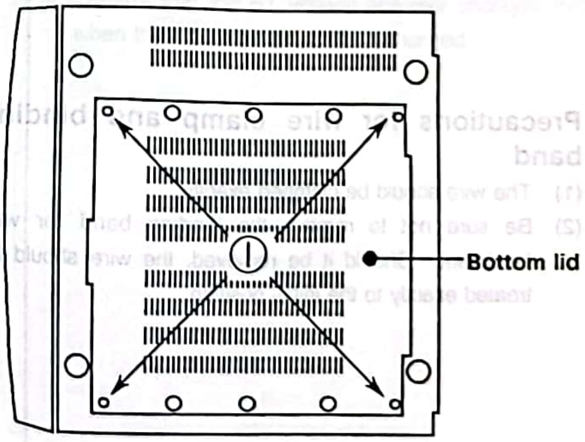


Fig. 5 (Bottom surface view)

6. Method of dismounting front panel ass'y

- Dismount the top cover.
- Dismount the rear cover.

(1) Remove the chord of degauss coil (Power PCB [I]).

(2) Remove the two chords of deflecting coil (Main PCBs [H] and [V]).

(3) Remove the anode cap.

● Pay attention to the high tension!!
Since the cap will be electrified, be sure to remove the cap after discharging.

(4) After removing the [CRT EARTH] chord, pull out the CRT socket PCB.

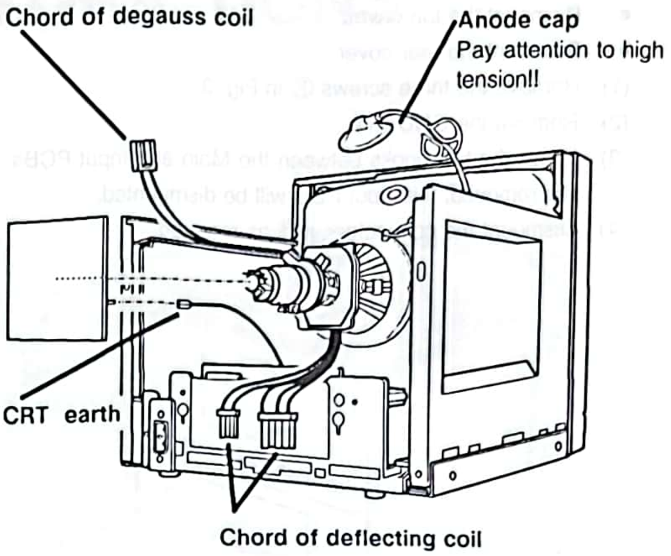
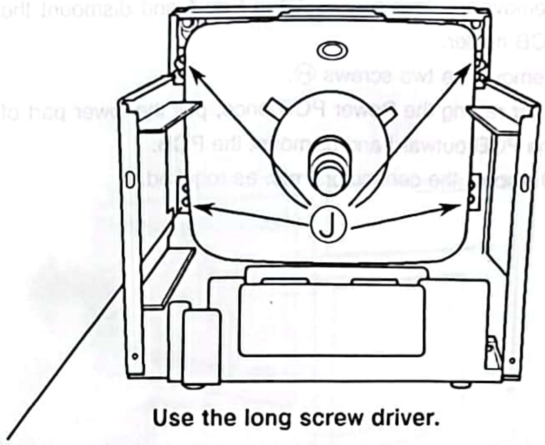

Chord of degauss coil
Anode cap
Pay attention to high tension!!
CRT earth
Chord of deflecting coil

Fig. 6-1

(5) When the four screws Ⓙ are removed, the front panel ass'y will be dismounted together with the CRT.

● Since the CRT is heavy, remove the screws Ⓙ while holding the front panel ass'y.



Use the long screw driver.

The screw driver is accessible from here.

Fig. 6-2

7. Precautions for wire clamp and binding band

(1) The wire should be clamped exactly.

(2) Be sure not to remove the binding band for wire treatment. Should it be removed, the wire should be treated exactly to the initial position.

SERVICE ADJUSTMENTS

PRIOR TO STARTING ADJUSTMENT

- Dismount the top cover, rear cover and bottom lid.
- Perform sufficient warm-up of the TV set and testers. (for 30 minutes or more).
- Unless specified otherwise specially in [ADJUSTING STEP] given below, perform adjustment after setting the switches and VRs on the front panel to the following positions:

CONTRAST : CLICK position
BRIGHT : CLICK position
CHROMA : CLICK position
PHASE : CLICK position

- Regarding the list of the layout of adjusted parts, refer to [ADJUSTMENT LOCATION] in [SCHEMATIC DIAGRAM].

TOOLS AND FIXTURES FOR ADJUSTMENT

- DC voltmeter or digital voltmeter
- Oscilloscope
- Pattern generator (NTSC)
  - · If monoscope signal can be output, it is possible to perform further accurate adjustment.
  - · The signal should be input to VIDEO A.
- Color thermometer
  - · Adjustment is possible without it. If available, however, further accurate adjustment is possible.
- Short jumper
- 10kΩ resistor

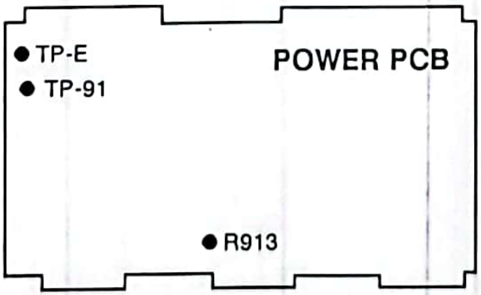
In addition to the above, the following tools are necessary to adjust the purity and convergence.

- Magnetic eraser
- Silicon bond (KE4866)
- REICHLOCK or G2 bond

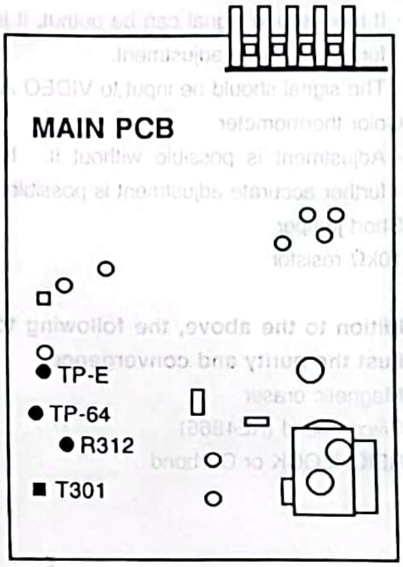
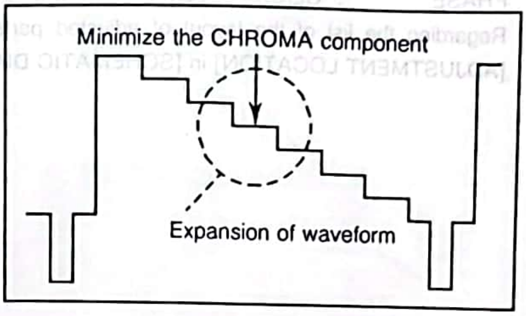
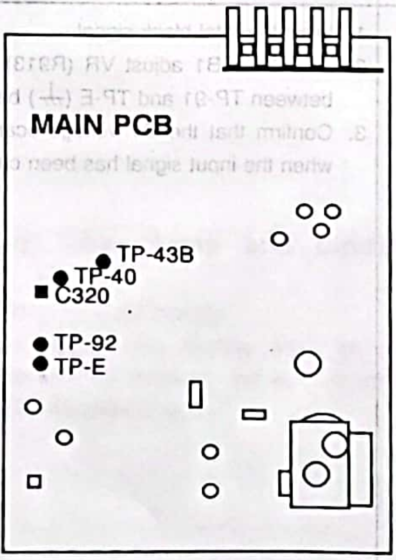
ADJUSTING STEP

POWER PCB

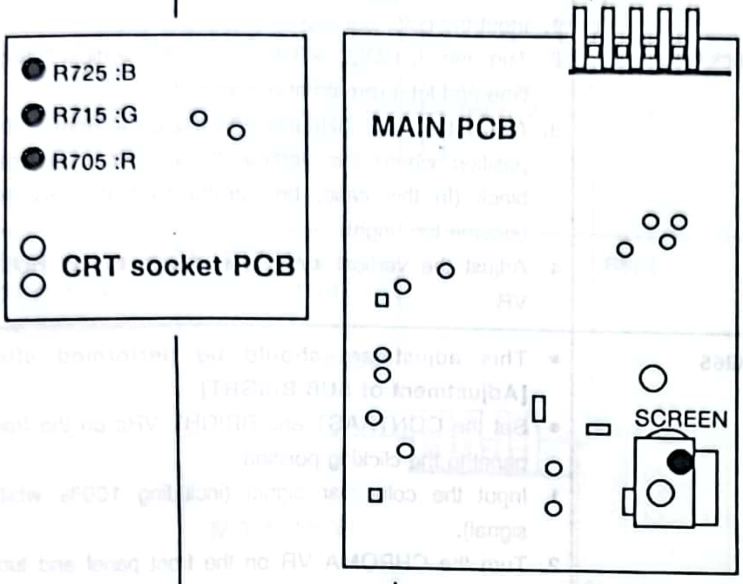
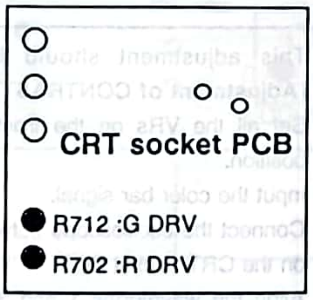
Item	Measuring instrument	Test point	Adjustment part	Description
Adjustment of B1 VOLTAGE	**PATTERN GENERATOR** **DC VOLTMETER or DIGITAL VOLTMETER**	**TP-91** **TP-E(⏚)**	**R913**	1. Input the total black signal. 2. Adjust the B1 adjust VR (R913) so that the voltage between TP-91 and TP-E (⏚) becomes DC 110V. 3. Confirm that the B1 voltage scarcely changes even when the input signal has been changed.



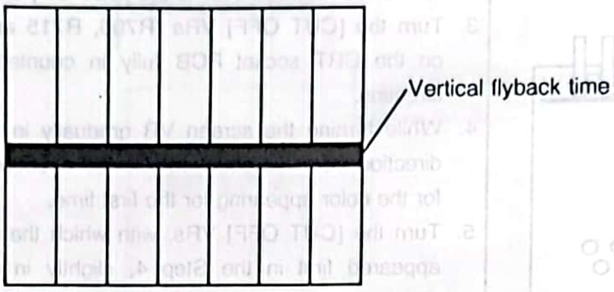
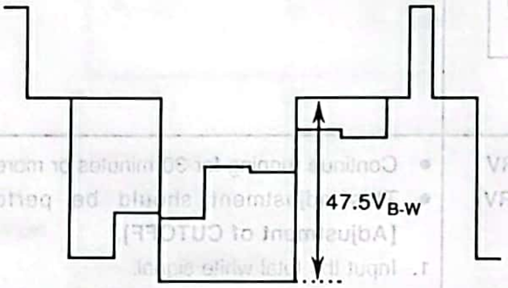
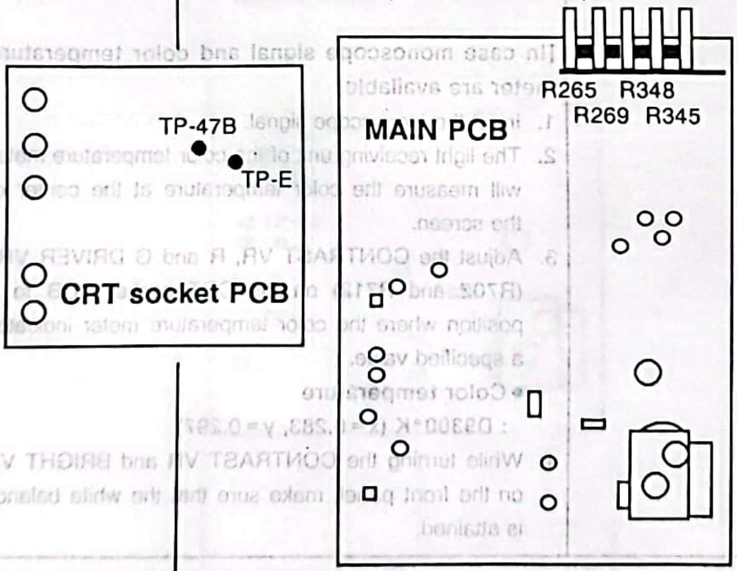
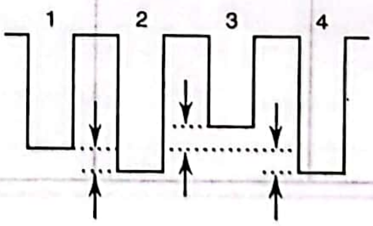
MAIN PCB (1)

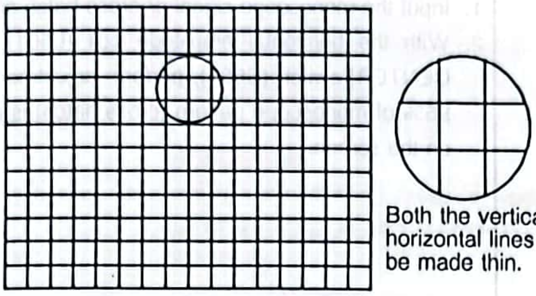
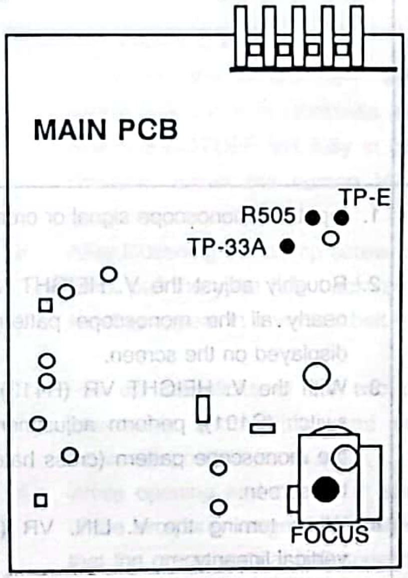
Item	Measuring instrument	Test point	Adjustment part	Description
Adjustment of NTSC COMB LINE FILTER	PATTERN GENERATOR OSCILLOSCOPE 	TP-64	T301 R312	1. Input the color bar signal. 2. Connect the oscilloscope between TP-64 and TP-E. In case the waveform can be expanded by the oscilloscope, expand the waveform to allow easy adjustment. 3. Adjust the DL PHASE VR (T301) so that the CHROMA component becomes minimum. 4. With the COMB VR (R312), adjust the CHROMA component so that the component becomes minimum. 5. Repeat Steps 3 and 4. 
Adjustment of NTSC COLOR SYNCHRONISM	PATTERN GENERATOR SHORT JUMPER 10 kΩ RESISTOR 		C320	1. Input the color bar signal. 2. Connect TP-43B and TP-E with a short jumper. 3. Connect TP-40 and TP-92 with a 10kΩ resistor. 4. Adjust the COLOR SYNC. VR (C320) to a position where the color changes from a striped pattern to a color bar and remains at a standstill. There will be no problem if the color of color bar being displayed on the screen is different from that of the color bar signal being input. 5. Remove the connected short jumper and resistor. 6. Make sure that the color synchronism is not collapsed and instantaneously led in when returned to the color bar signal again after changing the input select switch.

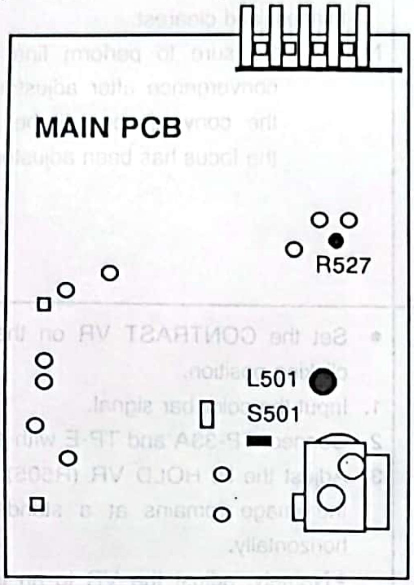
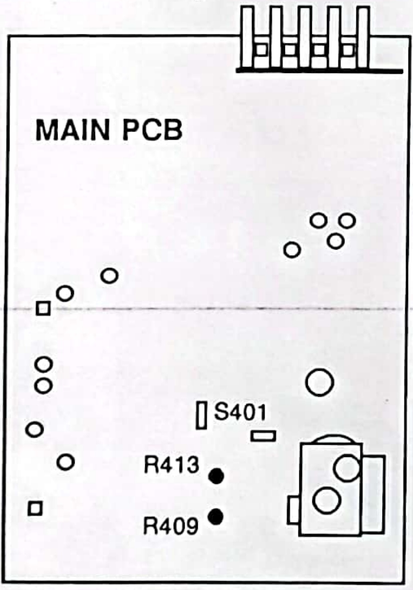
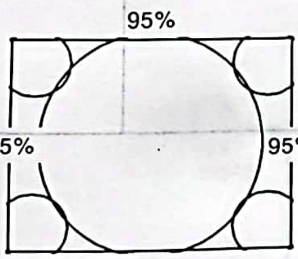
CRT socket PCB

Item	Measuring instrument	Test point	Adjustment part	Description
Adjustment of CUTOFF  R725 :B R715 :G R705 :R CRT socket PCB MAIN PCB SCREEN	PATTERN GENERATOR		R705 :R R715 :G R725 :B SCREEN VR	• Continue running for 10 minutes or more. 1. Input the total white signal. 2. Turn the transverse one line [SET UP] switch (S203) on the rear surface over to the [SET UP] side. 3. Turn the [CUT OFF] VRs (R705, R715 and R725) on the CRT socket PCB fully in counterclockwise direction. 4. While turning the screen VR gradually in clockwise direction from full counterclockwise direction, search for the color appearing for the first time. 5. Turn the [CUT OFF] VRs, with which the color has appeared first in the Step 4, slightly in clockwise direction. 6. By turning the [CUT OFF] VRs for the other two colors in clockwise direction, adjust the intensity of the three shining colors so that the transverse single line look white. 7. Return the transverse single line [SET UP] switch (S203) to the [NORMAL] side.
Adjustment of WHITE BALANCE	PATTERN GENERATOR	 	R702 :R DRV R712 :G DRV	• Continue running for 30 minutes or more. • This adjustment should be performed after [Adjustment of CUTOFF]. 1. Input the total white signal. 2. Adjust the R and G DRIVER VRs (R702 and R712) on the CRT socket PCB to a position where the entire screen becomes white. 3. While turning the CONTRAST VR and BRIGHT VR on the front panel, make sure that the white balance is attained. **[In case monoscope signal and color temperature meter are available]** 1. Input the monoscope signal. 2. The light receiving unit of the color temperature meter will measure the color temperature at the center of the screen. 3. Adjust the CONTRAST VR, R and G DRIVER VRs (R702 and R712) on the CRT socket PCB to a position where the color temperature meter indicates a specified value. **• Color temperature** **: D9300°K (x = 0.283, y = 0.297)** 4. While turning the CONTRAST VR and BRIGHT VR on the front panel, make sure that the white balance is attained.

MAIN PCB (2)

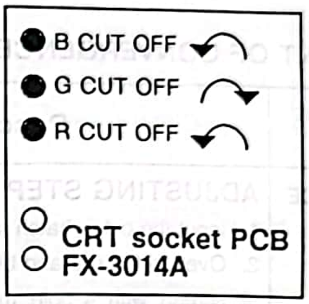
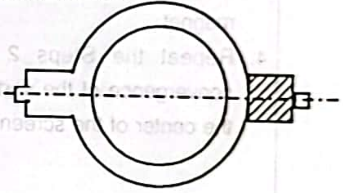
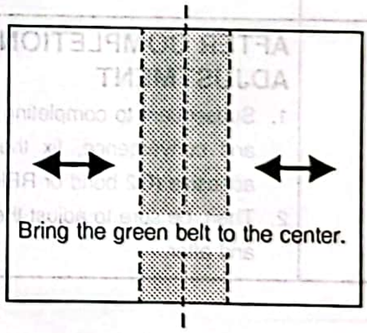
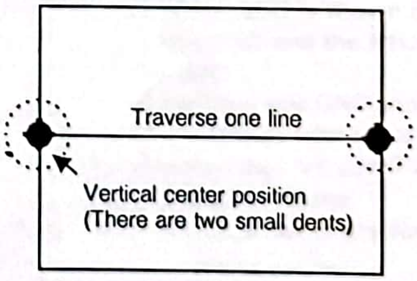
Item	Measuring instrument	Test point	Adjustment part	Description
Adjustment of SUB BRIGHT	**PATTERN GENERATOR**  		**R269**	● Continue running for 30 minutes or more. ● This adjustment should be performed after **[Adjustment of CUTOFF].** ● Set the CONTRAST and BRIGHT VRs on the front panel to the clicking position. 1. Input the color bar signal. 2. Turn the V. HOLD VR to display the vertical flyback time and let it remain at a standstill. 3. Adjust the SUB BRIGHT VR (R269) in front of the position where the vertical flyback time becomes black (In this case, be careful so that it will not become too bright). 4. Adjust the vertical synchronism with the V. HOLD VR.
Standard setting of CONTRAST	**PATTERN GENERATOR** **OSCILLOSCOPE**  	**TP-47B** **TP-E**	**R265**	● This adjustment should be performed after **[Adjustment of SUB BRIGHT]** ● Set the CONTRAST and BRIGHT VRs on the front panel to the clicking position. 1. Input the color bar signal (including 100% white signal). 2. Turn the CHROMA VR on the front panel and turn the screen to black and white. 3. Connect the oscilloscope between TP-47B and TP-E on the CRT socket PCB. 4. Adjust the SUB CONT. VR (R265) so that the voltage of the waveform becomes $47.5V_{B\text{-}W}$. 5. Release the CHROMA VR on the front panel to return the screen to color.
Adjustment of CHROMA and PHASE (NTSC)	**PATTERN GENERATOR** **OSCILLOSCOPE**  TP-47B TP-E CRT socket PCB R265 R348 R269 R345 MAIN PCB	**TP-47B** **TP-E**	**R345** **R348**	● This adjustment should be performed after **[Adjustment of CONTRAST]** ● Set all the VRs on the front panel to the clicking position. 1. Input the color bar signal. 2. Connect the oscilloscope between TP-47B and TP-E on the CRT socket PCB. 3. Align the waveforms 1 and 3 in the diagram below with the SUB PHASE VR (R345) 4. Align the waveforms 1 and 4 in the diagram below with the SUB CHROMA VR (R348) 5. By repeating the Steps 3 and 4, align the waveforms 1 - 4 to the same level. 

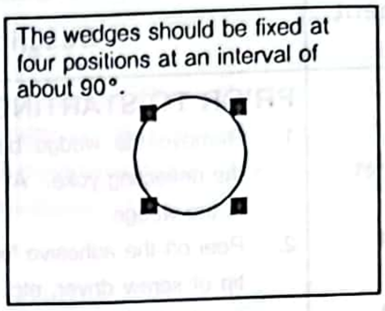
Item	Measuring instrument	Test point	Adjustment part	Description
Adjustment of FOCUS  Both the vertical and horizontal lines should be made thin.	**PATTERN GENERATOR**		**FOCUS VR**	• This adjustment should be performed after **[Standard setting of CONTRAST].** 1. Input the cross hatch signal. 2. Adjust the FOCUS VR to a position where the vertical and horizontal lines of cross hatch become thinnest and clearest. Note: Be sure to perform final adjustment of the convergence after adjustment of focus, since the convergence will be changed whenever the focus has been adjusted.
Adjustment of HORIZONTAL SYNCHRONISM  	**PATTERN GENERATOR** **SHORT JUMPER**		**R505**	• Set the CONTRAST VR on the front panel to the clicking position. 1. Input the color bar signal. 2. Connect TP-33A and TP-E with a short jumper. 3. Adjust the H. HOLD VR (R505) to a position where the image remains at a standstill without flowing horizontally. ● Namely, adjust the VR to an intermediate position where the image flows horizontally. 4. Remove the connected short jumper. 5. Make sure that the color synchronism is not collapsed and normal image appears instantaneously when returned to the color bar signal again after changing the input select switch.

Item	Measuring instrument	Test point	Adjustment part	Description
Adjustment of H. AMPLITUDE and H. CENTER	**PATTERN GENERATOR**  		**L501** **S501** **R527**	- This adjustment should be performed after **[Adjustment of B1 VOLTAGE]** and **[Adjustment of HORIZONTAL SYNCHRONISM]**. 1. Input the monoscope signal or cross hatch signal. 2. With the horizontal amplitude coil (L501) and [H. CENTER] switch (S501), perform adjustment so that 95% of monoscope pattern (cross hatch) is displayed on the screen.
Adjustment of V. AMPLITUDE, V. CENTER and V. LINEARITY	**PATTERN GENERATOR**  	 [OVER SCAN] screen	**R413** **S401** **R409**	1. Input the monoscope signal or cross hatch signal. 2. Roughly adjust the V. HEIGHT VR (R413) so that nearly all the monoscope pattern (cross hatch) is displayed on the screen. 3. With the V. HEIGHT VR (R413) and V. CENTER switch (S401), perform adjustment so that 95% of the monoscope pattern (cross hatch) is displayed on the screen. 4. While turning the V. LIN. VR (R409), adjust the vertical linearity. 5. Repeat the Steps 2 - 4 as required.

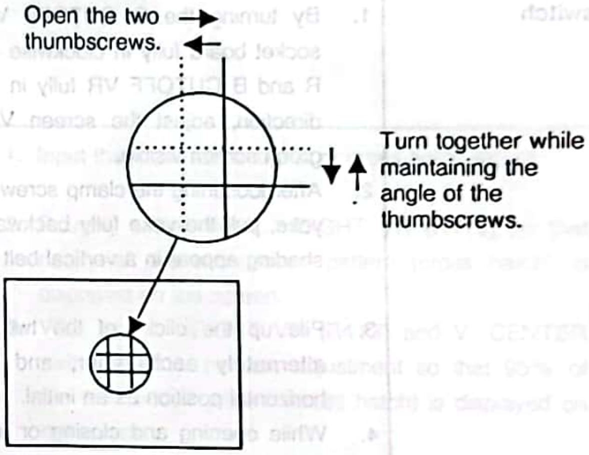
ADJUSTING STEP OF COLOR TONE

ADJUSTMENT OF PURITY

Adjustment Part	Description	Remarks
Wedge **Purity magnet** **G cutoff VR** **R cutoff VR** **B cutoff VR** **Screen VR** **Deflecting yoke** **Traverse one line [SET UP] switch**	**PRIOR TO STARTING ADJUSTMENT:** 1. Remove the wedge being inserted in between the deflecting yoke. At this time, clear the trace of the wedge. 2. Peel off the adhesive fixing six magnets with the tip of screw driver, etc. so that the magnets will turn freely. 3. Input the total white signal. 4. Perform magnetic erasing of the Brown tube with a magnetic eraser. 5. Set the brightness and picture to slightly higher levels, and perform warm-up roughly for 20 - 30 minutes.	
	ADJUSTING STEP 1. By turning the G CUTOFF VR on the CRT socket board fully in clockwise direction and the R and B CUTOFF VR fully in counterclockwise direction, adjust the screen VR to make the green screen visible.	 B CUT OFF G CUT OFF R CUT OFF CRT socket PCB FX-3014A
	2. After loosening the clamp screw of the deflecting yoke, pull the yoke fully backward, and let color shading appear in a vertical belt form. 3. Pile up the clicks of the two purity magnets alternately each other, and set them to a horizontal position as an initial.	Align the two purity magnets to a horizontal level. 
	4. While opening and closing or turning the clicks of the two purity magnets, perform adjustment so that the green vertical belt appears at the center of the screen.	
	5. By pushing out the deflecting yoke to the front side, position the yoke so that the entire screen becomes totally green (In this case, tentatively fix the deflecting yoke with a wedge so that the yoke is not moved).	
	6. Set the traverse one line [SET UP] switch to the [SET UP] side to display traverse one line on the screen. With the deflecting yoke, make the traverse one line horizontal and further close to the vertical center (Do not change the cross position of the deflecting yoke) 7. Return the transverse single line [SET UP] switch to the [NORMAL] side.	 Traverse one line Vertical center position (There are two small dents) Let the traverse one line approach between both of the white dents denoted by:

Adjustment Part	Description	Remarks
	8. Confirm that the purity has been attained with regard to the red, blue and monocolor rasters. 9. Tentatively fix the deflecting yoke slightly with the clamp screw to prevent its movement in back and forth direction. 10. Restore the wedges to the initial position and fix the deflecting yoke. Use four wedges of a X-form and set them respectively at an interval of about 90°. The wedges should be fixed to the Brown tube using silicon bond (KE4866) 11. The clamp screw of the deflecting yoke should be clamped firmly with and adequate torque.	 The wedges should be fixed at four positions at an interval of about 90°.

ADJUSTMENT OF CONVERGENCE

Adjustment Part	Description	Remarks
CONVERGENCE MAGNET	**ADJUSTING STEP** 1. Input the cross hatch signal. 2. Overlap the red and blue lings at the center of the screen with 4-pole magnet to turn the color to Magenta color (red/blue). 3. Next, overlap the Magenta color (red/blue) and green lings at the center of the screen with 6-pole magnet. 4. Repeat the Steps 2 and 3, and adjust the convergence of the vertical and horizontal lines at the center of the screen.	 Open the two thumbscrews. Turn together while maintaining the angle of the thumbscrews.
	AFTER COMPLETION OF ADJUSTMENT 1. Subsequent to completing adjustment of the purity and convergence, fix the six magnets using an adhesive (G2 bond or REICHLOCK). 2. Then, be sure to adjust the boards on Page 1 13 and after.	

PARTS LIST

CAUTION

- The parts marked ⚠ are very important for the safety. When replacing these parts, be sure to use specified ones to secure the safety and performance.
- The module circuit board is supplied together with the assembly, but the parts which do not have the drawing in this Parts List, P. C. Board Ass'y and the Parts No. columns of which are filled with lines ── . will not be supplied.
- As a rule, the resistors and capacitors which are indicated as shown in (NOTE 2) "HOW TO EXPRESS PARTS NUMBERS OF STANDARD PARTS" are not shown in the list of the parts on the board.
  When ordering the service parts, confirm the resistance/rated power, capacitance/rated voltage, and type of the parts, then order by the part No. indicated according to (NOTE 2).

(NOTE 1) ABBREVIATIONS OF RESISTORS, CAPACITORS AND TOLERANCES

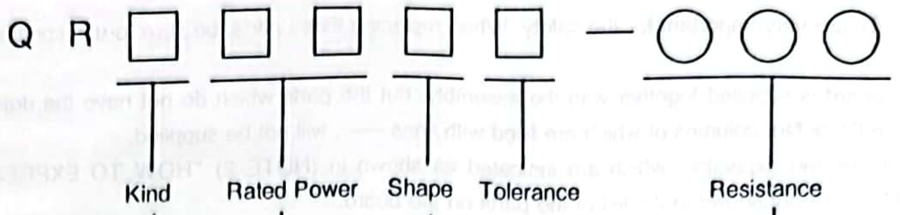
RESISTORS	
C R	Carbon Resistor
F R	Fusible Resistor
P R	Plate Resistor
V R	Variable Resistor
HV R	High Voltage Resistor
MF R	Metal Film Resistor
MG R	Metal Glazed Resistor
MP R	Metal Plate Resistor
OM R	Metal Oxide Film Resistor
CMF R	Coating Metal Film Resistor
UNF R	Non-Flammable Resistor
CH V R	Chip Variable Resistor
CH MG R	Chip Metal Glazed Resistor
COMP. R	Composition Resistor
LPTC R	Linear Positive Temperature Coefficient Resistor

CAPACITORS	
C CAP.	Ceramic Capacitor
E CAP.	Electrolytic Capacitor
M CAP.	Mylar Capacitor
HV CAP.	High Voltage Capacitor
MF CAP.	Metalized Film Capacitor
MM CAP.	Metalized Mylar Capacitor
MP CAP.	Metalized Polystyrol Capacitor
PP CAP.	Polypropylene Capacitor
PS CAP.	Polystyrol Capacitor
TF CAP.	Thin Film Capacitor
MPP CAP.	Metalized Polypropylene Capacitor
TAN. CAP.	Tantalum Capacitor
CH C CAP.	Chip Ceramic Capacitor
BP E CAP.	Bi-Polar Electrolytic Capacitor
CH AL E CAP.	Chip Aluminum Electrolytic Capacitor
CH AL BP CAP.	Chip Aluminum Bi-Polar Capacitor
CH TAN. E CAP.	Chip Tantalum Electrolytic Capacitor
CH AL BP E CAP.	Chip Tantalum Bi-Polar Electrolytic Capacitor

TOLERANCES									
F	G	J	K	M	N	R	H	Z	P
±1%	±2%	±5%	±10%	±20%	±30%	+30% - 10%	+50% - 10%	+80% - 20%	+100% - 0%

(NOTE 2) HOW TO EXPRESS PARTS NUMBERS OF STANDARD PARTS

■ RESISTOR



Symbol	Part Name
C	COMP.R
D	C R
S	CH MG R

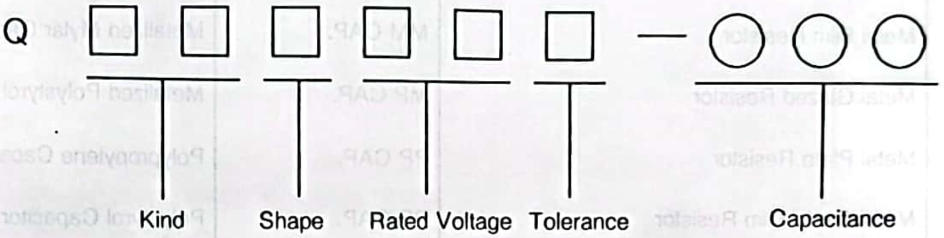
Symbol	Rated Power
01	1 w
12	1/2 w
14	1/4 w
16	1/6 w
18	1/8 w

Symbol	Shape
1	Straight lead
8	Chip

Indicate with first two-figure expressed by Ω and following 0.
please note that,in case of resistance less than 10 Ω, a letter "R"will be effective as point.

EX.
2.2 Ω = 2R2
470 Ω = 47×10^1 → 471
150kΩ = 15×10^4 → 154

■ CAPACITOR



Symbol	Part Name
CS	C CAP.
CS	CH C CAP.
ET	E CAP.
FM	M CAP.

6Figure \ 5Figure	0	1	2
A		10V	100V
C		16V	160V
D			200V
E		25V	250V
H		50V	500V
J	6.3V	63V	
V		35V	

Indicate with first two-figure expressed by pF and following 0.
Please note that,in case of capacitance less than 10 pF a letter "R" will be effective as point.

EX
5pF = 5R0
1000pF = 10×10^2 → 102
47μF = 47×10^6 → 476

Symbol	Shape
1	Straight lead
1	Leads in the same direction
8	Chip
A	Leads in the same direction (compact part)

MAIN PARTS LIST

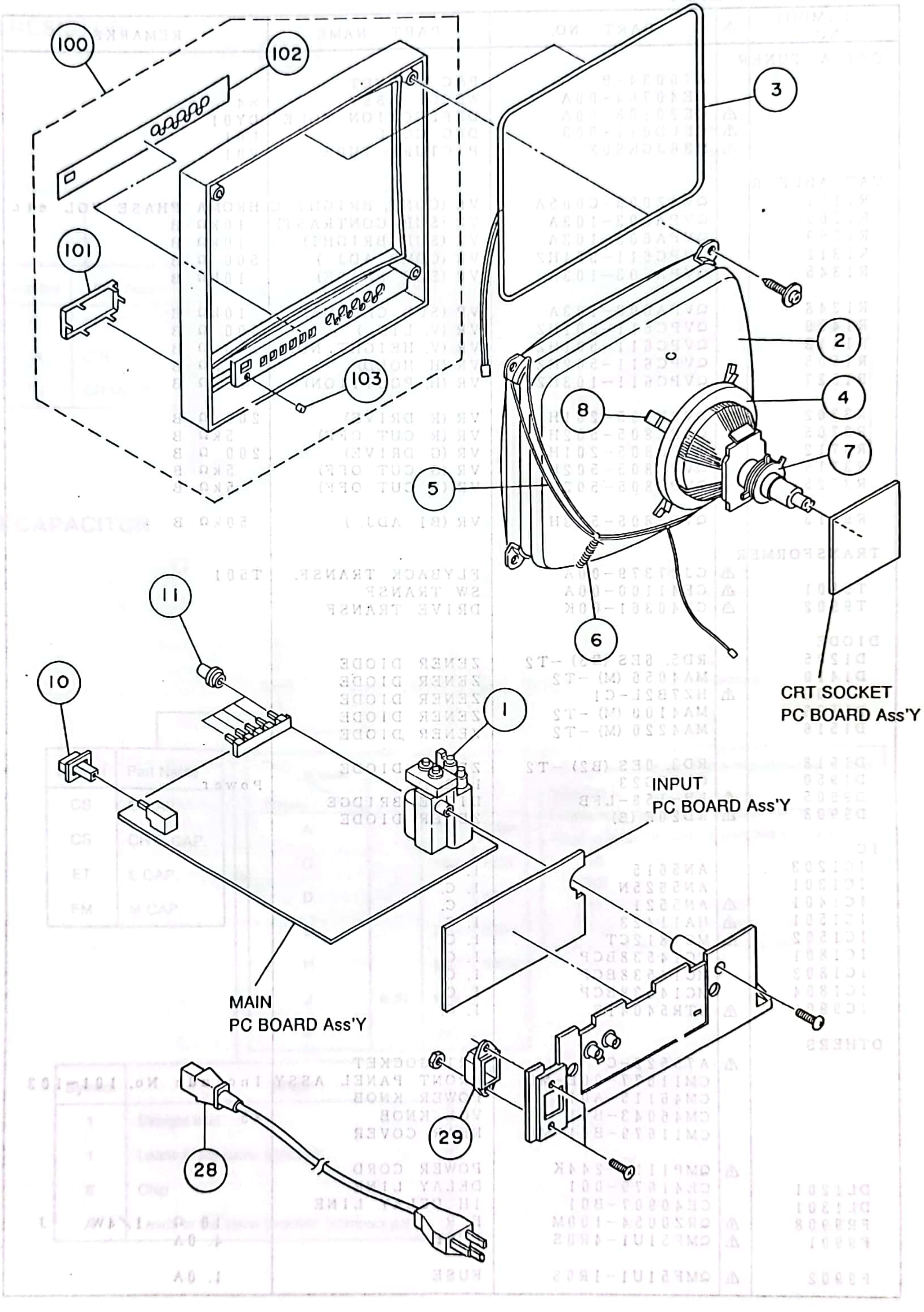
SYMBOL NO.	⚠	PART NO.	PART NAME	REMARKS
CRT & TUNER				
		A75034-B	P&C MAGNET	
		CE40764-00A	WEDGE ASSY	×4
	⚠	CE20168-A0A	DEFLECTION YOKE	DY01
	⚠	CELD011-003	DEG COIL	L01
	⚠	M36JGK90X	PICTURE TUBE	V01
VARIABLE R				
R1101		QVAZ005-C005A	VR (CONT. BRIGHT CHROMA PHASE VOL etc	
R1265		QVPA603-103A	VR (SUB CONTRAST)	10kΩ B
R1269		QVPA603-103A	VR (SUB BRIGHT)	10kΩ B
R1312		QVPC611-501HZ	VR (COMB ADJ.)	500 Ω B
R1345		QVPA603-103A	VR (SUB PHASE)	10kΩ B
R1348		QVPA603-103A	VR (SUB CHROMA)	10kΩ B
R1409		QVPC611-501HZ	VR (V. LIN.)	500 Ω B
R1413		QVPC611-501HZ	VR (V. HEIGHT NOR)	500 Ω B
R1505		QVPC611-502HZ	VR (H. HOLD)	5kΩ B
R1527		QVPC611-103HZ	VR (H. POSITION)	10kΩ B
R3702		QVPE805-201H	VR (R DRIVE)	200 Ω B
R3705		QVPE805-502H	VR (R CUT OFF)	5kΩ B
R3712		QVPE805-201H	VR (G DRIVE)	200 Ω B
R3715		QVPE805-502H	VR (G CUT OFF)	5kΩ B
R3725		QVPE805-502H	VR (B CUT OFF)	5kΩ B
R9913		QVPE805-503H	VR (B1 ADJ.)	50kΩ B
TRANSFORMER				
	⚠	CJ27379-00A	FLYBACK TRANSF.	T501
T9901	⚠	CE41100-00A	SW TRANSF	
T9902	⚠	CE40361-00K	DRIVE TRANSF	
DIODE				
D1205		RD5.6ES (B3)-T2	ZENER DIODE	
D1410		MA4056 (M)-T2	ZENER DIODE	
D1502	⚠	HZ7B2L-C1	ZENER DIODE	
D1506		MA4100 (M)-T2	ZENER DIODE	
D1516		MA4220 (M)-T2	ZENER DIODE	
D1518		RD3.0ES (B2)-T2	ZENER DIODE	
D1950		GL5PG23	L.E.D	Power
D9905	⚠	LB-156-LFB	DIODE BRIDGE	
D9908	⚠	RD20E (B)	ZENER DIODE	
IC				
IC1203		AN5615	I.C.	
IC1301		AN5625N	I.C.	
IC1401	⚠	AN5521	I.C.	
IC1501	⚠	HA11423	I.C.	
IC1502	⚠	MC7812CT	I.C.	
IC1801		MC14538BCP	I.C.	
IC1803		MC14538BCP	I.C.	
IC1804		MC14538BCP	I.C.	
IC9901	⚠	STR54041S	I.C.	
OTHERS				
	⚠	A75522-C	CRT SOCKET	
		CM11677-00E-M0	FRONT PANEL ASSY	Include No. 101~103
		CM46115-A01	POWER KNOB	
		CM46043-B01	VOL KNOB	×5
		CM11679-B01-M0	REAR COVER	
	⚠	QMP1110-244K	POWER CORD	
DL1201		CE41679-001	DELAY LINE	
DL1301		CE40907-B01	1H DELAY LINE	
FR9908	⚠	QRZ0054-100M	F R	10 Ω 1/4W J
F9901	⚠	QMF51U1-4R0S	FUSE	4.0A
F9902	⚠	QMF51U1-1R0S	FUSE	1.0A

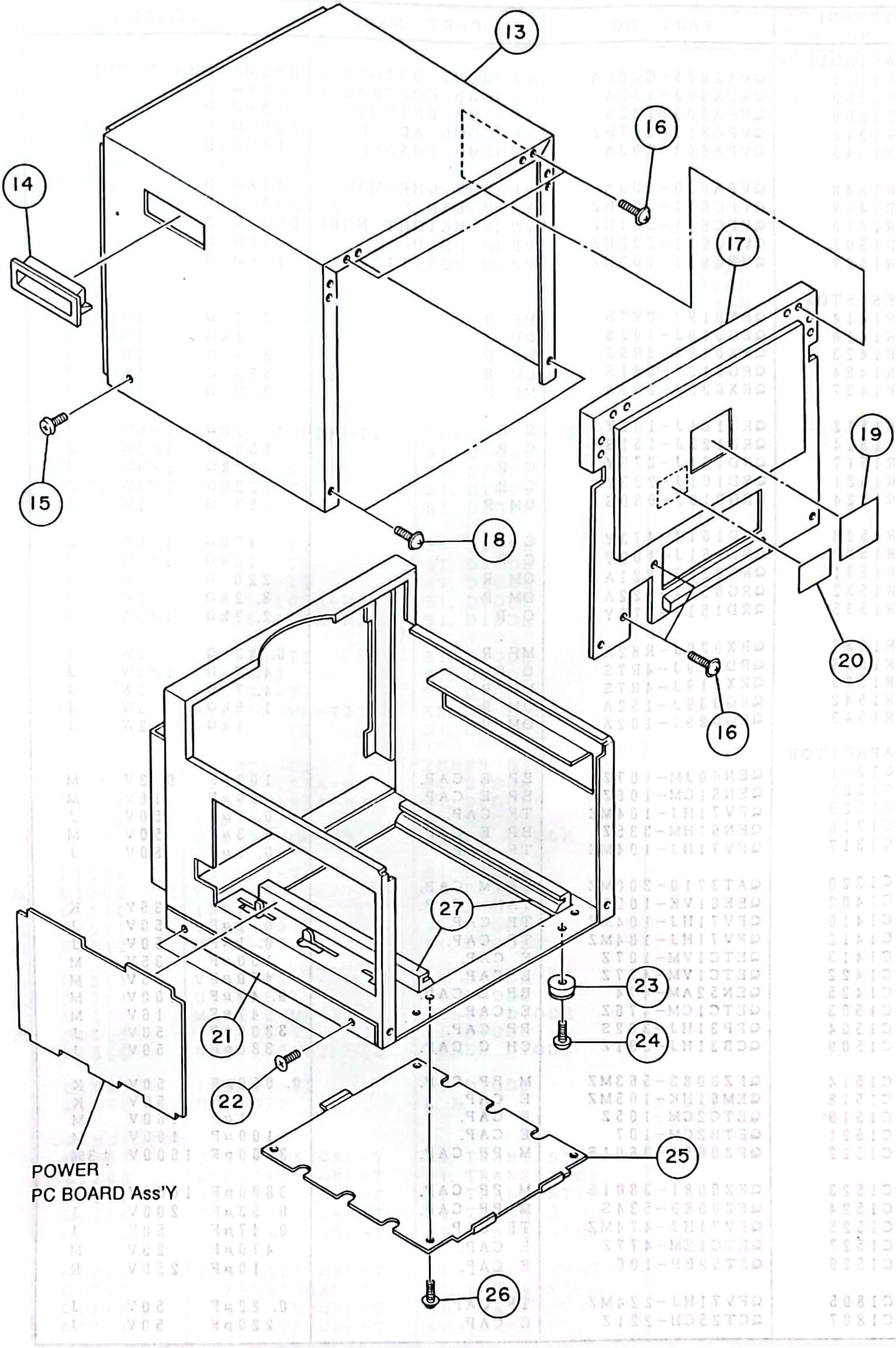
SYMBOL NO.	⚠	PART NO.	PART NAME	REMARKS
OTHERS				
LF9901	⚠	CE40847-00C	LINE FILTER	
LF9902	⚠	CE40847-00C	LINE FILTER	
R1502	⚠	CJ39622-00A	R BLOCK	
S1401		QSL4A13-C02	LEVER SWITCH	V. Center
S1501		QSL4A13-C02	LEVER SWITCH	H. Center
S1901	⚠	QSP4D21-C06	PUSH SWITCH	Power
S6201		QSS4C22-C01	SLIDE SWITCH	
S6203		QSS4C22-C01	SLIDE SWITCH	
TH1201		A75575-332	THERMISTOR	
TH9901	⚠	CE41553-001	TH POSISTER	
X1301		CE40668-001	CRYSTAL	

EXPLODED VIEW PARTS LIST

SYMBOL NO.	PART NO.	PART NAME	REMARKS
⚠ 1	CJ27379-00A	FLYBACK TRANSF.	T501
⚠ 2	M36JGK90X	PICTURE TUBE	V01
⚠ 3	CELD011-003	DEG COIL	L01
⚠ 4	CE20168-A0A	DEFLECTION YOKE	DY01
5	CH30168-00D	BRAIDED ASSY	
6	A48457	SPRING	
7	A75034-B	P&C MAGNET	
8	CE40764-00A	WEDGE ASSY	×4
10	CM46115-A01	POWER KNOB	
11	CM46043-B01	VOL KNOB	×5
13	CM11682-A01	TOP COVER	
14	CM33989-001	HANDLE	×2
15	SXST4010M	SCREW	×2
16	SBSB4016M	TAP SCREW	×6
17	CM11679-B01-M0	REAR COVER	
18	CM44287-00C	ASSY SCREW	×2
19	CM21416-007 (R)	ROLL R LABEL	
20	CM22044-001	WARNING LABEL	
21	CM11681-A01	BOTTOM BASE	
22	SSSB3010Z	TAP SCREW	×4
23	QZF2008-002	FOOT	×4
24	SBSB4010Z	TAP SCREW	×4
25	CM21944-B01	BOTTOM LID	
26	CM44286-00A	ASSY SCREW	×4
27	CM31015-A03-V0	CHASSIS RAIL	×2
⚠ 28	QMP1110-244K	POWER CORD	
⚠ 29	QMCB005-001	3P INLET	
100	CM11677-00E-M0	FRONT PANEL ASSY	Include No. 101~103
101	CM33992-002	COVER	
102	CM33995-004	CONTROL SHEET	
103	CM46116-A01	LED LENS	

EXPLODED VIEW




POWER
PC BOARD Ass'Y

PRINTED CIRCUIT BOARD PARTS LIST

MAIN PC BOARD ASS'Y (FX-1030A)

SYMBOL NO.	PART NO.	PART NAME	REMARKS
VARIABLE R			
R1101	QVAZ005-C005A	VR (CONT. BRIGHT CHROMA PHASE VOL etc	
R1265	QVPA603-103A	VR (SUB CONTRAST)	10kΩ B
R1269	QVPA603-103A	VR (SUB BRIGHT)	10kΩ B
R1312	QVPC611-501HZ	VR (COMB ADJ.)	500 Ω B
R1345	QVPA603-103A	VR (SUB PHASE)	10kΩ B
R1348	QVPA603-103A	VR (SUB CHROMA)	10kΩ B
R1409	QVPC611-501HZ	VR (V. LIN.)	500 Ω B
R1413	QVPC611-501HZ	VR (V. HEIGHT NOR)	500 Ω B
R1505	QVPC611-502HZ	VR (H. HOLD)	5kΩ B
R1527	QVPC611-103HZ	VR (H. POSITION)	10kΩ B
RESISTOR			
R1414	QRX019J-2R7S	MF R	2.7 Ω 1W J
R1418	QRG019J-102S	OM R	1kΩ 1W J
R1423	QRX019J-3R9S	MF R	3.9 Ω 1W J
R1424	QRG019J-561S	OM R	560 Ω 1W J
⚠ R1427	QRX029J-2R2A	MF R	2.2 Ω 1W J
⚠ R1512	QRD161J-102Y	C R	1kΩ 1/6W J
⚠ R1514	QRD123J-151SX	C R	150 Ω 1/2W J
⚠ R1517	QRD161J-273Y	C R	27kΩ 1/6W J
⚠ R1521	QRD161J-223Y	C R	22kΩ 1/6W J
R1524	QRG019J-680S	OM R	68 Ω 1W J
⚠ R1528	QRD161J-473Y	C R	47kΩ 1/6W J
⚠ R1529	QRD161J-103Y	C R	10kΩ 1/6W J
⚠ R1531	QRG029J-221A	OM R	220 Ω 2W J
R1532	QRG039J-822A	OM R	8.2kΩ 3W J
⚠ R1535	QRD161J-272Y	C R	2.7kΩ 1/6W J
⚠ R1537	QRX029J-R82A	MF R	0.82 Ω 2W J
⚠ R1538	QRD149J-4R7S	C R	4.7 Ω 1/4W J
⚠ R1539	QRX019J-4R7S	MF R	4.7 Ω 1W J
⚠ R1542	QRG039J-152A	OM R	1.5kΩ 3W J
⚠ R1543	QRG029J-102A	OM R	1kΩ 2W J
CAPACITOR			
C1211	QEN60JM-107Z	BP E CAP.	100μF 6.3V M
C1223	QEN61CM-106Z	BP E CAP.	10μF 16V M
C1229	QFV71HJ-104MZ	TF CAP.	0.1μF 50V J
C1316	QEN61HM-335Z	BP E CAP.	3.3μF 50V M
C1317	QFV71HJ-104MZ	TF CAP.	0.1μF 50V J
C1320	QAT3710-300MZ	TRIM CAP.	
C1402	QEE61VK-105BZ	TAN. CAP.	1μF 35V K
C1410	QFV71HJ-104MZ	TF CAP.	0.1μF 50V J
C1412	QFV71HJ-104MZ	TF CAP.	0.1μF 50V J
⚠ C1413	QETC1VM-107Z	E CAP.	100μF 35V M
⚠ C1422	QETC1VM-477Z	E CAP.	470μF 35V M
C1425	QEN52AM-474	BP E CAP.	0.47μF 100V M
⚠ C1503	QETC1CM-476Z	E CAP.	47μF 16V M
C1504	QFP31HJ-332S	PP CAP.	3300pF 50V J
⚠ C1509	QCS31HJ-331Z	CH C CAP.	330pF 50V J
C1514	QFZ0083-563MZ	M PP CAP.	0.056μF 50V K
C1518	QEM61HK-105MZ	E CAP.	1μF 50V K
⚠ C1519	QETC2CM-105Z	E CAP.	1μF 160V M
⚠ C1521	QETB2CM-107	E CAP.	100μF 160V M
⚠ C1522	QFZ0081-3601S	M PP CAP.	3600pF 1600V ±3%
⚠ C1523	QFZ0081-3801S	M PP CAP.	3800pF 1600V ±3%
⚠ C1524	QFZ0089-534S	M PP CAP.	0.53μF 200V J
C1525	QFV71HJ-474MZ	TF CAP.	0.47μF 50V J
⚠ C1527	QETC1EM-477Z	E CAP.	470μF 25V M
⚠ C1529	QET52ER-106	E CAP.	10μF 250V R
C1805	QFV71HJ-224MZ	TF CAP.	0.22μF 50V J
C1807	QCT25CH-221Z	C CAP.	220pF 50V J

SYMBOL NO.	PART NO.	PART NAME	REMARKS
CAPACITOR			
C1812	QCT25CH-220Z	C CAP.	22pF 50V J
C1813	QCT25CH-390Z	C CAP.	39pF 50V J
TRANSFORMER			
T1301	CE40176-001	DL P TRANSF.	
T1302	CE40313-001	B P TRANSF	
T1502	CE40361-00B	SW DRIVE TRANSF	
⚠ T1503	CE40381-00A	SIDE PIN TRANSF	
COIL			
L1201	CELP006-180Z	PEAKING COIL	18µH
L1202	CELP006-150Z	PEAKING COIL	150µH
L1301	CELP006-5R6Z	PEAKING COIL	5.6µH
⚠ L1501	CE41238-00A	WIDTH COIL	
⚠ L1502	A39934	LINIARITY COIL	
⚠ L1504	CJ30030-038	HEATER CHOKE	
DIODE			
D1205	RD5. 6ES (B3) -T2	ZENER DIODE	
D1210	1SS146-T2	SI. DIODE	
D1211	1SS133-T2	SI. DIODE	
D1212	1SS133-T2	SI. DIODE	
D1214	1SS133	SI. DIODE	
D1303	1SS133-T2	SI. DIODE	
D1304	1SS133-T2	SI. DIODE	
D1305	1SS133-T2	SI. DIODE	
⚠ D1401	1SR35-100A-HJ	SI. DIODE	
D1402	1SR35-100A-HJ	SI. DIODE	
D1403	1SS133-T2	SI. DIODE	
⚠ D1404	V19E-T3	SI. DIODE	
D1405	1SS133-T2	SI. DIODE	
D1410	MA4056 (M) -T2	ZENER DIODE	
D1501	1SS133-T2	SI. DIODE	
⚠ D1502	HZ7B2L-C1	ZENER DIODE	
D1503	1SR35-100A-HJ	SI. DIODE	
D1504	1SR35-100A-HJ	SI. DIODE	
D1505	1SS133-T2	SI. DIODE	
D1506	MA4100 (M) -T2	ZENER DIODE	
D1508	1SS133-T2	SI. DIODE	
⚠ D1509	V19E-T3	SI. DIODE	
D1510	1SS133-T2	SI. DIODE	
⚠ D1511	V19E-T3	SI. DIODE	
⚠ D1512	V19E-T3	SI. DIODE	
⚠ D1513	V19E-T3	SI. DIODE	
⚠ D1514	U19E-FK	SI. DIODE	
D1516	MA4220 (M) -T2	ZENER DIODE	
⚠ D1517	1SS133-T2	SI. DIODE	
D1518	RD3. 0ES (B2) -T2	ZENER DIODE	
D1801	1SS133-T2	SI. DIODE	
D1950	GL5PG23	L. E. D	Power
TRANSISTOR			
Q1207	2SC1740S (QR) -T	SI. TRANSISTOR	
Q1208	2SC1740S (QR) -T	SI. TRANSISTOR	
Q1209	2SC1740S (QR) -T	SI. TRANSISTOR	
Q1214	2SC1740S (QR) -T	SI. TRANSISTOR	
Q1215	2SC1740S (QR) -T	SI. TRANSISTOR	
Q1216	2SC1740S (QR) -T	SI. TRANSISTOR	
Q1217	2SA933S (QR) -T	SI. TRANSISTOR	
Q1218	2SC1740S (QR) -T	SI. TRANSISTOR	
Q1219	2SC1740S (QR) -T	SI. TRANSISTOR	

SYMBOL NO.	PART NO.	PART NAME	REMARKS
TRANSISTOR			
Q1302	2SC1740S (QR) -T	SI. TRANSISTOR	
Q1303	2SC1740S (QR) -T	SI. TRANSISTOR	
Q1304	2SC1740S (QR) -T	SI. TRANSISTOR	
Q1305	2SC1740S (QR) -T	SI. TRANSISTOR	
Q1502	2SC1740S (QR) -T	SI. TRANSISTOR	
Q1503	2SC1627A (OY)	SI. TRANSISTOR	
⚠ Q1504	2SD1554-LB	SI. TRANSISTOR	
Q1507	2SA933S (QR) -T	SI. TRANSISTOR	
Q1801	2SC1740S (QR) -T	SI. TRANSISTOR	
Q1803	2SA933S (QR) -T	SI. TRANSISTOR	
Q1804	2SA933S (QR) -T	SI. TRANSISTOR	
Q1805	2SC1740S (QR) -T	SI. TRANSISTOR	
Q1806	2SC1740S (QR) -T	SI. TRANSISTOR	
Q1807	2SA933S (QR) -T	SI. TRANSISTOR	
Q1808	2SC1740S (QR) -T	SI. TRANSISTOR	
IC			
IC1203	AN5615	I. C.	
⚠ IC1301	AN5625N	I. C.	
⚠ IC1401	AN5521	I. C.	
⚠ IC1501	HA11423	I. C.	
IC1502	MC7812CT	I. C.	
IC1801	MC14538BCP	I. C.	
IC1803	MC14538BCP	I. C.	
IC1804	MC14538BCP	I. C.	
OTHERS			
DL1201	CE41679-001	DELAY LINE	
DL1301	CE40907-B01	1H DELAY LINE	
⚠ R1502	CJ39622-00A	R BLOCK	
S1401	QSL4A13-C02	LEVER SWITCH	V. Center
S1501	QSL4A13-C02	LEVER SWITCH	H. Center
⚠ S1901	QSP4D21-C06	PUSH SWITCH	Power
TH1201	A75575-332	THERMISTOR	
X1301	CE40668-001	CRYSTAL	

CRT SOCKET PC BOARD Ass'y (FX-3014A)

SYMBOL NO.	PART NO.	PART NAME	REMARKS
VARIABLE R			
R3702	QVPE805-201H	VR (R DRIVE)	200 Ω B
R3705	QVPE805-502H	VR (R CUT OFF)	5kΩ B
R3712	QVPE805-201H	VR (G DRIVE)	200 Ω B
R3715	QVPE805-502H	VR (G CUT OFF)	5kΩ B
R3725	QVPE805-502H	VR (B CUT OFF)	5kΩ B
RESISTOR			
⚠ R3708	QRG029J-822A	OM R	8.2kΩ 2W J
⚠ R3718	QRG029J-822A	OM R	8.2kΩ 2W J
⚠ R3728	QRG029J-822A	OM R	8.2kΩ 2W J
⚠ R3732	QRC122K-474	COMP. R	470kΩ 1/2W K
⚠ R3734	QRC122K-105	COMP. R	1MΩ 1/2W K
CAPACITOR			
⚠ C3708	QETC2EM-106Z	E CAP.	10μF 250V M
⚠ C3709	QFH63BK-223M	MM CAP.	0.022μF 1250V K
⚠ C3711	QETC2EM-106Z	E CAP.	10μF 250V M
COIL			
L3701	A76186-82Z	PEAKING COIL	82μH
⚠ L3702	A76186-82Z	PEAKING COIL	82μH
L3703	A76186-82Z	PEAKING COIL	82μH
⚠ L3704	A76186-82Z	PEAKING COIL	82μH
L3705	A76186-82Z	PEAKING COIL	82μH
⚠ L3706	A76186-82Z	PEAKING COIL	82μH
DIODE			
D3704	1SS133-T2	SI. DIODE	
D3705	1SS133-T2	SI. DIODE	
D3706	RM2C-LFA1	SI. DIODE	
TRANSISTOR			
Q3701	2SC2068-LB	SI. TRANSISTOR	
Q3702	2SC4502-T	SI. TRANSISTOR	
Q3703	2SC2068-LB	SI. TRANSISTOR	
Q3704	2SC4502-T	SI. TRANSISTOR	
Q3705	2SC2068-LB	SI. TRANSISTOR	
Q3706	2SC4502-T	SI. TRANSISTOR	
OTHERS			
⚠	A75522-C	CRT SOCKET	
R3733	ERZ-C05ZK271	ZINC N R	270V

INPUT PC BOARD Ass'y (FX-6017A)

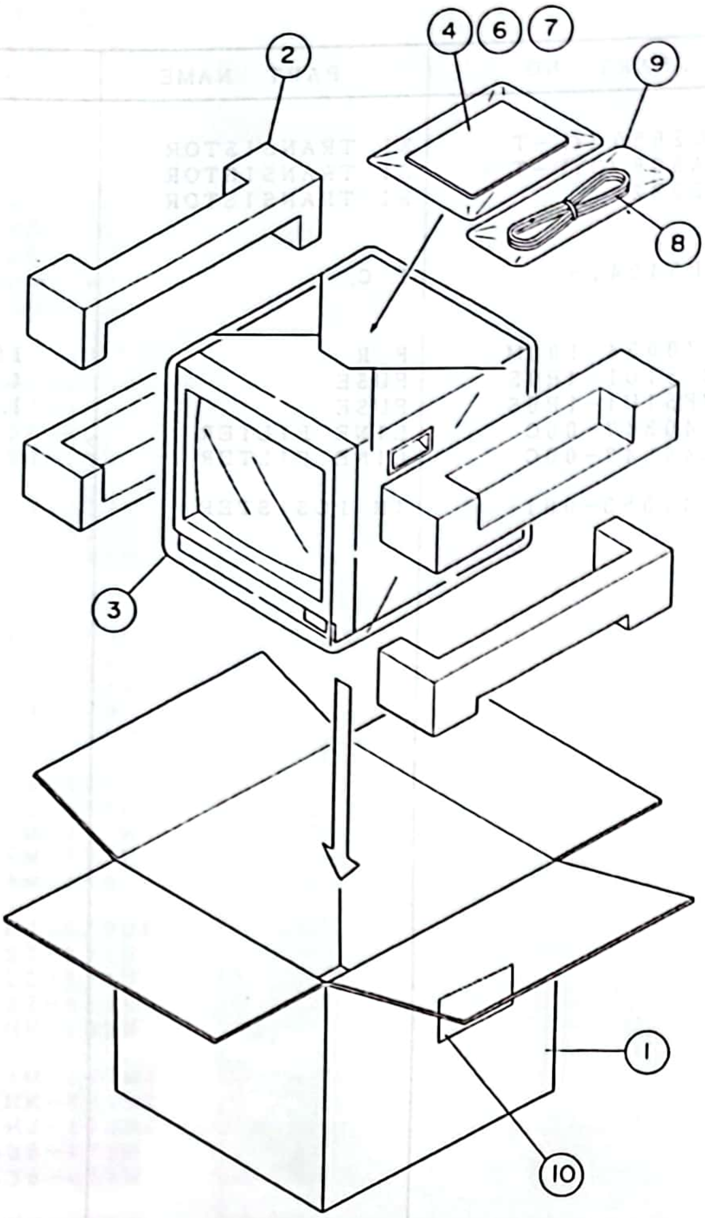
SYMBOL NO.	PART NO.	PART NAME	REMARKS
RESISTOR			
R6201	QRV141F-75R0AY	MF R	75 Ω 1/4W F
CAPACITOR			
C6201	QEKC1HM-335GMZ	E CAP.	3.3μF 50V M
C6203	QEKC1CM-336MZ	E CAP.	33μF 16V M
C6205	QEKC1CM-107MZ	E CAP.	100μF 16V M
C6207	QFV71HJ-104MZ	TF CAP.	0.1μF 50V J
C6605	QEKC1CM-107MZ	E CAP.	100μF 16V M
DIODE			
D6201	1SS133-T2	SI. DIODE	
D6202	1SS133-T2	SI. DIODE	
TRANSISTOR			
Q6201	2SC1740S (R) -T	SI TRANSISTOR	
Q6203	2SC1740S (R) -T	SI TRANSISTOR	
OTHERS			
S6201	QSS4C22-C01	SLIDE SWITCH	
S6203	QSS4C22-C01	SLIDE SWITCH	

POWER PC BOARD Ass'y (FX-9014A)

SYMBOL NO.	PART NO.	PART NAME	REMARKS
VARIABLE R			
R9913	QVPE805-503H	VR (B1 ADJ.)	50kΩ B
RESISTOR			
⚠ R9902	QRF204K-2R2	UNF R	2.2 Ω 20W K
⚠ R9903	QRC122K-274	COMP. R	270kΩ 1/2W K
⚠ R9904	QRC122K-274	COMP. R	270kΩ 1/2W K
⚠ R9906	QRC122K-394	COMP. R	390kΩ 1/2W K
⚠ R9907	QRC122K-334	COMP. R	330kΩ 1/2W K
R9909	QRG019J-151S	OM R	150 Ω 1W J
⚠ R9911	QRG039J-473A	OM R	47kΩ 3W J
⚠ R9912	QRG029J-470A	OM R	47 Ω 2W J
R9916	QRM055K-R22	MP R	0.22 Ω 5W K
R9918	QRX019J-3R9S	MF R	3.9 Ω 1W J
⚠ R9919	QRG029J-333A	OM R	33kΩ 2W J
⚠ R9921	QRD149J-561S	C R	560 Ω 1/4W J
⚠ R9922	QRD149J-2R2S	C R	2.2 Ω 1/4W J
CAPACITOR			
⚠ C9901	QFZ9022-104M	MF CAP.	0.1μFAC250V M
⚠ C9903	QFZ9022-104M	MF CAP.	0.1μFAC250V M
⚠ C9904	QFZ9022-104M	MF CAP.	0.1μFAC250V M
⚠ C9905	QCZ9034-472A	C CAP.	4700pFAC125V P
⚠ C9906	QCZ9034-472A	C CAP.	4700pFAC125V P
⚠ C9907	QCZ9034-472A	C CAP.	4700pFAC125V P
⚠ C9908	QCZ9034-472A	C CAP.	4700pFAC125V P
⚠ C9911	QET72VM-337M	E CAP.	330μF 350V M
⚠ C9912	QET72VM-337M	E CAP.	330μF 350V M
C9913	QETC2AM-106Z	E CAP.	10μF 100V M
⚠ C9914	QCS32HJ-680UZ	C CAP.	68pF 500V J
⚠ C9916	QCZ0122-391U	C CAP.	390pF 2kV K
⚠ C9917	QCZ0122-821U	C CAP.	820pF 2kV K
⚠ C9918	QCZ0122-821U	C CAP.	820pF 2kV K
⚠ C9919	QCF22HP-103M	CH C CAP.	0.01μF 500V P
⚠ C9921	QEHC2AM-107MZ	E CAP.	100μF 100V M
⚠ C9924	QCY32HK-821MZ	C CAP.	820pF 500V K
C9925	QFV71HJ-474MZ	TF CAP.	0.47μF 50V J
⚠ C9928	QCZ9036-472M	C CAP.	4700pFAC125V M
⚠ C9929	QCZ9036-472M	C CAP.	4700pFAC125V M
⚠ C9932	QETC1EM-108Z	E CAP.	1000μF 25V M
⚠ C9933	QETB2CM-107	E CAP.	100μF 160V M
⚠ C9934	QCZ0122-471A	C CAP.	470pF 2kV K
⚠ C9935	QETB2CM-107	E CAP.	100μF 160V M
TRANSFORMER			
⚠ T9901	CE41100-00A	SW TRANSF	
⚠ T9902	CE40361-00K	DRIVE TRANSF	
DIODE			
D9901	EU2A-LFF6	SI. DIODE	
⚠ D9902	RU1C-LFA1	SI. DIODE	
⚠ D9903	W06B	SI. DIODE	
⚠ D9904	EU2A-LFF6	SI. DIODE	
⚠ D9905	LB-156-LFB	DIODE BRIDGE	
⚠ D9906	EU2A-LFF6	SI. DIODE	
⚠ D9907	RU4B-LFK2	SI. DIODE	
⚠ D9908	RD20E (B)	ZENER DIODE	
⚠ D9909	1S1555-LB13	SI. DIODE	
⚠ D9911	RU1C-LFA1	SI. DIODE	

SYMBOL NO.	PART NO.	PART NAME	REMARKS
TRANSISTOR			
Q9901	2SC2655(Y)-T	SI. TRANSISTOR	
Q9902	2SA966(OY)-T	SI. TRANSISTOR	
⚠ Q9903	2SD982	SI. TRANSISTOR	
IC			
⚠ IC9901	STR54041S	I. C.	
OTHERS			
⚠ FR9908	QRZ0054-100M	F R	10 Ω 1/4W J
⚠ F9901	QMF51U1-4R0S	FUSE	4. 0A
⚠ F9902	QMF51U1-1R0S	FUSE	1. 0A
⚠ LF9901	CE40847-00C	LINE FILTER	
⚠ LF9902	CE40847-00C	LINE FILTER	
⚠ TH9901	CE41553-001	TH POSISTER	

PACKING



PACKING PARTS LIST

SYMBOL NO.	PART NO.	PART NAME	REMARKS
1	CP10756-016	PACKING CASE	
2	CP10901-B0A	CUSHION ASSY	4Pcs in 1set
3	AP3804-22	SET COVER	
4	TM-1400UCV-IBA	INST. BOOK	
6	BT-20104	SERVICE INF CARD	
7	CM21229-B01	SAFETY TIPS	
⚠ 8	QMP1110-244K	POWER CORD	
9	QPGA030-02505	POLY. COVER	
10	BT-20109	WARRANTY CARD	

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JVC

TM-1400U(CV)
Printed in Japan
9001 V.P.

JVC TM-1400U(CV) SCHEMATIC DIAGRAM

■ NOTICE

- ○ The voltage reading and waveform are measured at each point with a multi-meter and an oscilloscope while input a video signal (color bar) through the video input terminal on the monitor.
  The measurements were made with each VR under the condition just after the shipment. The figures of the signal circuits may be more or less different after adjustments, so use the figures simply for reference.
- ○ Multimeter used.
  DC 20kΩ/V
  Given figures are all DC voltages.
  Sweep speed of oscilloscope
  H→20μS/div. V→5mS/div.
  Others – sweep speed specified
- ○ Since the schematic diagram is a standard one, the circuit and circuit constants may be subject to change for improvement without any notice.

■ SAFETY

FR (—⋀⋀⋀—FR) denotes a fusible resistor which operates as a fuse. When replacing fusible resistors and parts indicated with black shading (▒) in the circuit diagrams, be sure to ensure safety by using designated parts. As to other parts too, use designated parts to maintain safety and performance.

■ INDICATION OF PARTS SYMBOL

Inside board (Example) FX-1030A : R1209→R209
Outside board (Example) R0001→R01

■ SCHEMATIC DIAGRAM INDICATION

Resistor

○ Resistance value
Without unit : [Ω] K : [kΩ] M : [MΩ]
○ Rated allowable power
Without indication : 1/6W
• Others Indicated
○ Type
Without indication : Carbon resistor
OMR : Oxide metal film resistor
UNFR : Unflammable resistor
MFR : Metal film resistor
MPR : Metal plate resistor
FR : Fusible resistor
• Composition resistor 1/2 [W] is indicated as 1/2S or Comp.

Capacitor

○ Capacitance
Above 1 : [pF] Below 1 : [μF]
○ Withstnad voltage
Without indication : DC 50 [V]
Others : DC withstand voltage [V]
AC indicated : AC withstand voltage [V]
○ Indications for electrolitic capacitors are as follows.
(Example)
47/50→capacitance [μF] /withstand voltage [V]
○ Type
Without indication : Ceramic capacitor
MY : Mylar capacitor
MM : Metalized mylar capacitor
PP : Polypropylene capacitor
MPP : Metalized polypropylene capacitor
MF : Metalized film capacitor
TF : Thin film capacitor
BP : Bipolar electrolytic capacitor
TAN. : Tantalum capacitor

Coil

Without unit : [μH]

Power Supply

——— : B_1 (110V) ▬ ▬ ▬ : B_2 (12V)

• Each voltage reading specified

Connection method

▭ : Connector
→▷ ▷|→ : Receptacle
○ ◯ : Wrapping or soldering

Test point & GND. symbol.

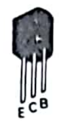
⊙ : Test point by miniature GT pin
○ : Only test point display
⊥ : Live (Primary) side ground
⏚ : Neutral (Secondary) side ground

NOTE FOR SERVICE

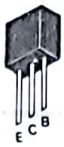
This model's power circuit is partly different in the GND. The difference of the GND is shown by the LIVE (primary: ⊥) side GND and the NEUTRAL (secondary: ⏚) side GND.
Don't short between the LIVE side GND and NEUTRAL side GND or never measure with a measuring apparatus (oscilloscope etc.) the LIVE side GND and NEUTRAL side GND at the same time.
If above note will not be kept, a fuse or any parts will be broken.

JVC VICTOR COMPANY OF JAPAN, Ltd. 900126 Ⓥ

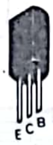
Basing of Transistor & ICs



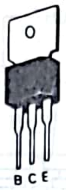
2SA933(QR)



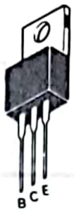
2SA933S(QR)
2SC1740S(QR)



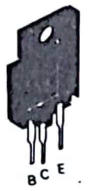
2SA966(OY)
2SC1360
2SC1627A
2SC2655(Y)



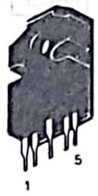
2SC2068



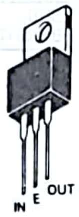
2SD982



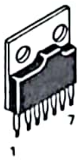
2SD1554



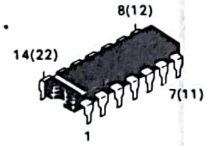
IC
STR54041



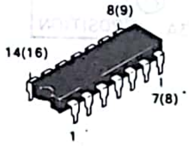
IC
TA78012AP



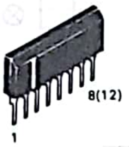
IC
AN5521



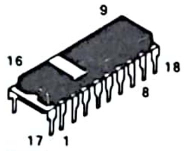
IC
AN5625N



IC
MC14066BCP
MC14538BCP



IC
AN5615



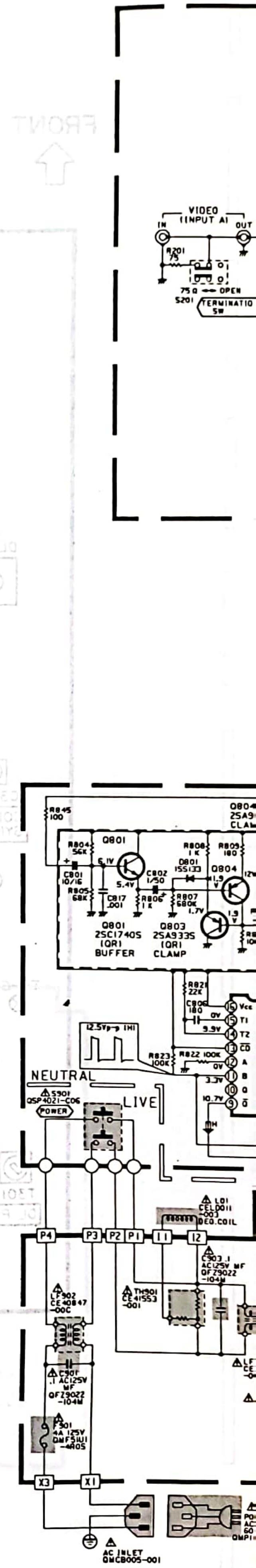
IC
HA11423

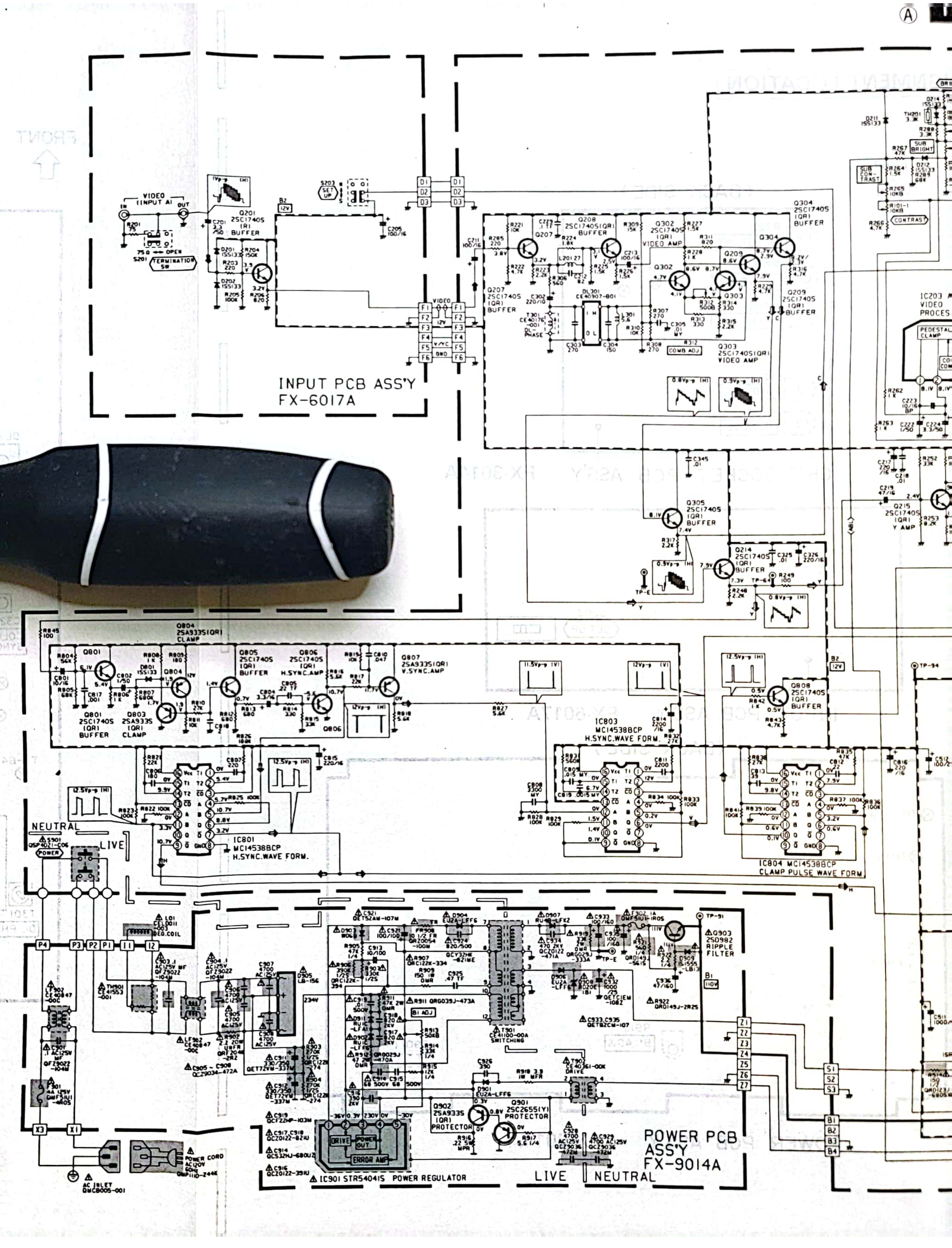
NOTE FOR SERVICE

This model's power circuit is partly different in the GND. The difference of the GND is shown by the LIVE (primary: ⊥) side GND and the NEUTRAL (secondary: ⫫) side GND.

Don't short between the LIVE side GND and NEUTRAL side GND or never measure with a measuring apparatus (oscilloscope etc.) the LIVE side GND and NEUTRAL side GND at the same time.

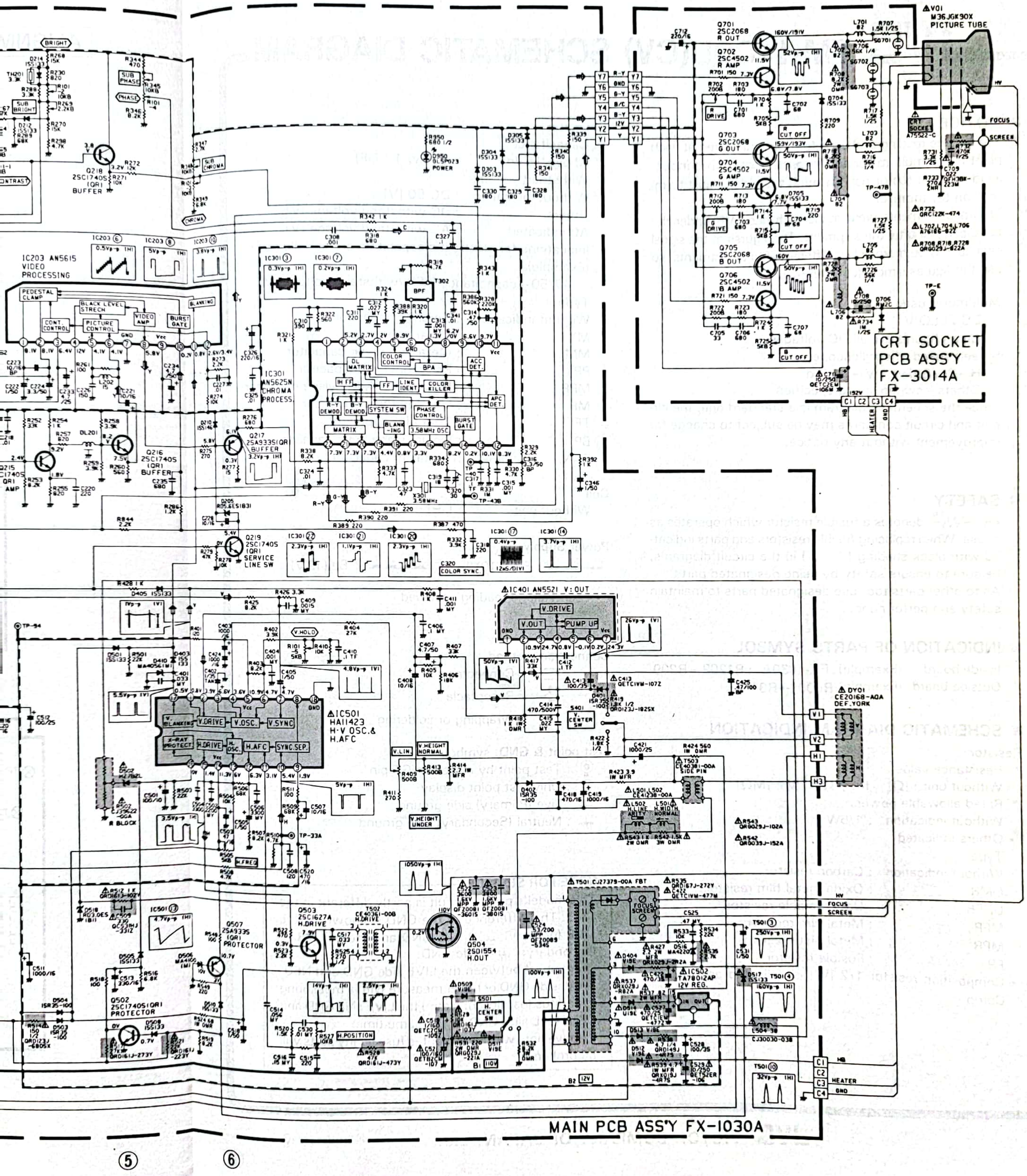
If above note will not be kept, a fuse or any parts will be broken.



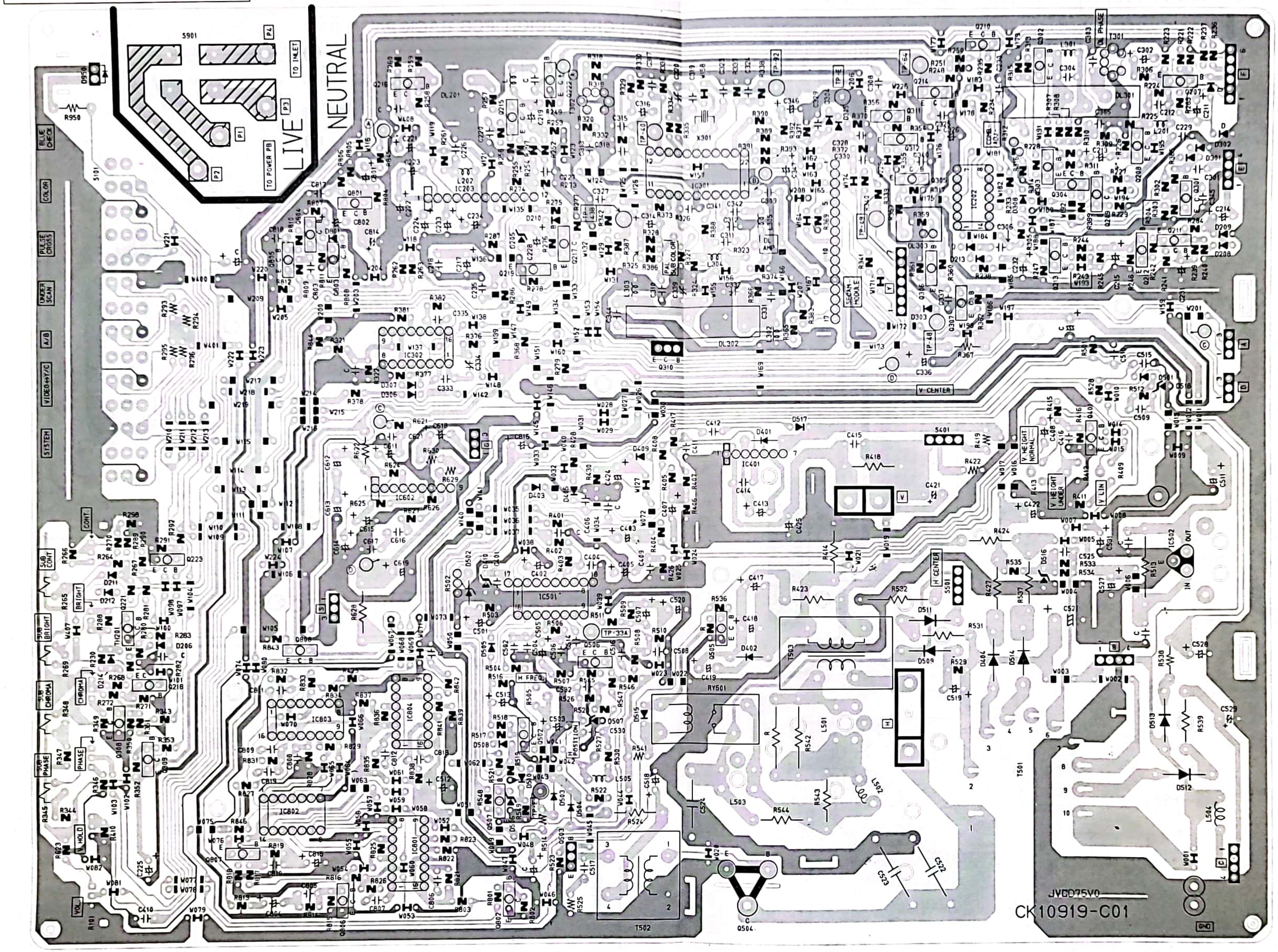

Ⓐ
INPUT PCB ASS'Y
FX-6017A
VIDEO (INPUT A)
IN
OUT
S201 TERMINATION SW
75Ω ⟷ OPEN
Q201 2SC1740S (R) BUFFER
S203 SET UP
D1
D2
D3
F1
F2
F3
F4
F5
F6
VIDEO
12V
Y/C
GND
Q207 2SC1740S (QR) BUFFER
Q208 2SC1740S(QR) BUFFER
Q302 2SC1740S (QR) VIDEO AMP
Q303 2SC1740S(QR) VIDEO AMP
Q304 2SC1740S (QR) BUFFER
Q209 2SC1740S (QR) BUFFER
DL301 CE40907-801
T301 CE40176-001 DL PHASE
COMB ADJ
0.8Vp-p (H)
0.9Vp-p (H)
Q305 2SC1740S (QR) BUFFER
Q214 2SC1740S (QR) BUFFER
Q215 2SC1740S (QR) Y AMP
TP-E
TP-64
IC203 VIDEO PROCES
PEDESTAL CLAMP
SUB CON-TRAST
SUB BRIGHT
CONTRAST
Q804 2SA933S(QR) CLAMP
Q801 2SC1740S (QR) BUFFER
D803 2SA933S (QR) CLAMP
Q805 2SC1740S (QR) BUFFER
Q806 2SC1740S (QR) H.SYNC.AMP
Q807 2SA933S(QR) V.SYNC.AMP
Q808 2SC1740S (QR) BUFFER
11.5Vp-p (V)
12Vp-p (V)
12.5Vp-p (H)
IC801 MC14538BCP H.SYNC.WAVE FORM.
IC803 MC14538BCP H.SYNC.WAVE FORM.
IC804 MC14538BCP CLAMP PULSE WAVE FORM
NEUTRAL
LIVE
S901 QSP4021-C06 POWER
P4
P3
P2
P1
I1
I2
X3
X1
L01 CELD011-003 DEG.COIL
POWER CORD AC120V 60Hz QMP1110-244K
AC INLET QMCB005-001
T901 CE41100-00A SWITCHING
T902 CE40361-00K DRIVE
Q901 2SC2655(Y) PROTECTOR
Q902 2SA933S (QR) PROTECTOR
Q903 2SD982 RIPPLE FILTER
DRIVE
POWER OUT
ERROR AMP
IC901 STR54041S POWER REGULATOR
TP-91
B1 110V
Z1
Z2
Z3
Z4
Z5
Z6
Z7
S1
S2
S3
B1
B2
B3
B4
POWER PCB ASS'Y FX-9014A
LIVE
NEUTRAL

partly different in the
ND is shown by the
and the NEUTRAL

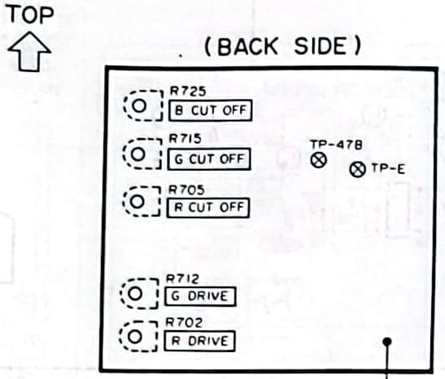
side GND and NEU-
ure with a measuring
e LIVE side GND and
me time.
fuse or any parts will


⚠V01 M36JGK90X PICTURE TUBE
Q701 2SC2068 R OUT
Q702 2SC4502 R AMP
Q703 2SC2068 G OUT
Q704 2SC4502 G AMP
Q705 2SC2068 B OUT
Q706 2SC4502 B AMP
R DRIVE
G DRIVE
B DRIVE
R CUT OFF
G CUT OFF
B CUT OFF
CRT SOCKET
FOCUS
SCREEN
CRT SOCKET PCB ASS'Y FX-3014A
HEATER
GND
IC203 AN5615 VIDEO PROCESSING
PEDESTAL CLAMP
BLACK LEVEL STRECH
PICTURE CONTROL
CONT. CONTROL
VIDEO AMP
BURST GATE
BLANKING
BRIGHT
SUB BRIGHT
CONTRAST
SUB PHASE
PHASE
SUB CHROMA
CHROMA
Q218 2SC1740S (QR) BUFFER
Q216 2SC1740S (QR) BUFFER
Q217 2SA933S (QR) BUFFER
IC301 AN5625N CHROMA PROCESS.
DL MATRIX
COLOR CONTROL
BPA
ACC DET
LINE IDENT
COLOR KILLER
APC DET
R-Y DEMOD
B-Y DEMOD
SYSTEM SW
PHASE CONTROL
BURST GATE
MATRIX
BLANK -ING
3.58MHz OSC
D950 DLSP023 POWER
Q219 2SC1740S (QR) SERVICE LINE SW
C320 COLOR SYNC
⚠IC401 AN5521 V:OUT
V.DRIVE
V.OUT
PUMP UP
V.HOLD
⚠IC501 HA11423 H-V OSC.& H.AFC
V. BLANKING
V.DRIVE
V.OSC.
V.SYNC
X-RAY PROTECT
H.DRIVE
H. OSC.
H.AFC
SYNC.SEP.
V.LIN
V.HEIGHT NORMAL
V.HEIGHT UNDER
H.FREQ
S401 V. CENTER SW
⚠DY01 CE20168-AQA DEF.YORK
⚠L501 L502 CE41238-00A SIDE PIN
L502 H.LIN ARITY
L501 H.WIDTH NORMAL
Q503 2SC1627A H.DRIVE
T502 CE40361-00B H.DRIVE
Q504 2SD1554 H.OUT
Q507 2SA933S (QR) PROTECTOR
Q502 2SC1740S (QR) PROTECTOR
S501 H. CENTER SW
H.POSITION
⚠T501 CJ27379-00A FBT
⚠IC502 TA78012AP 12V REG.
B1 110V
B2 12V
TP-94
TP-33A
TP-43B
TP-47B
TP-E
MAIN PCB ASS'Y FX-1030A
⑤
⑥

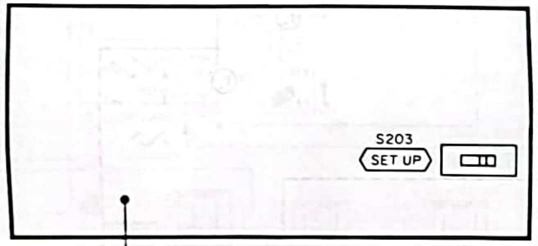
MAIN PCB BACK PATTERN



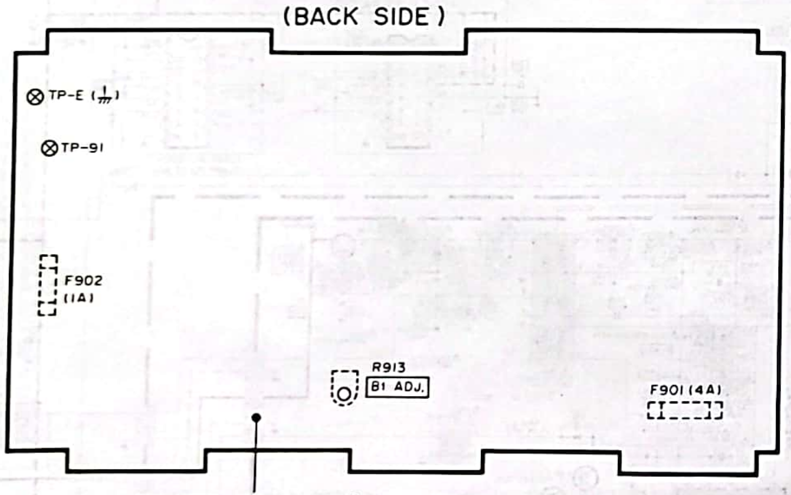
ALIGNMENT LOCATION



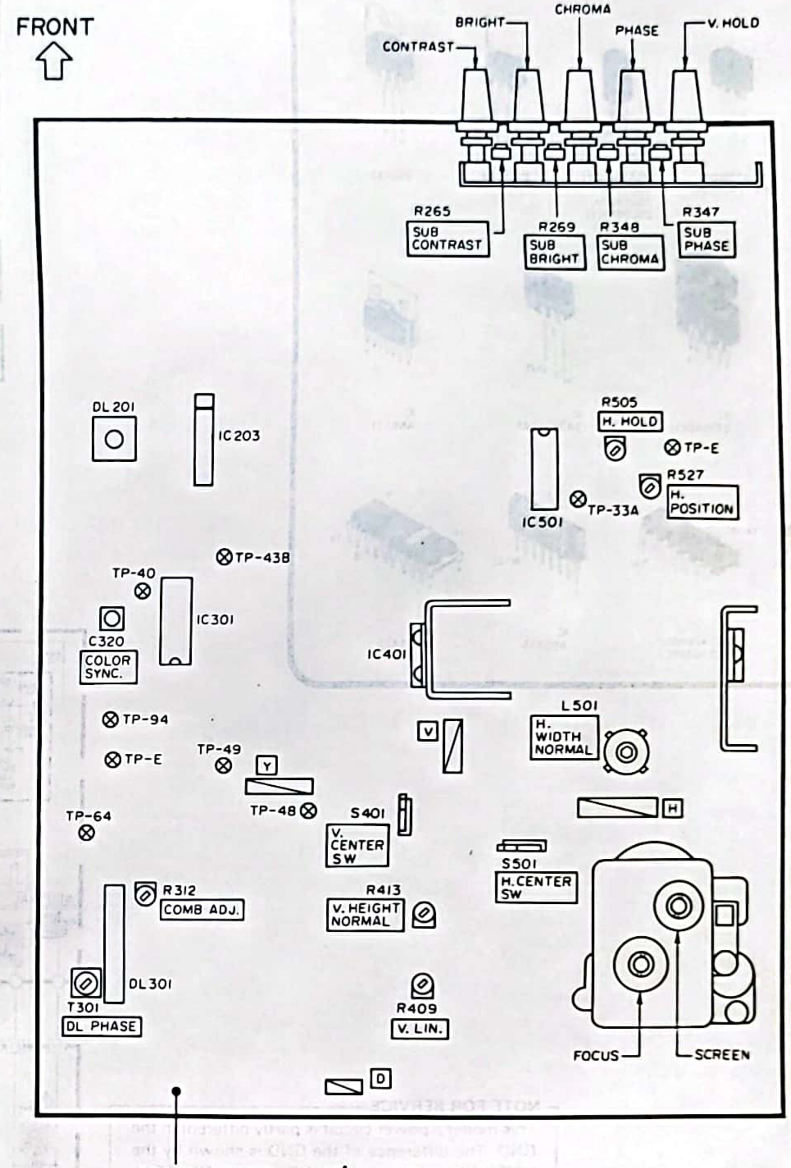
CRT SOCKET PCB ASS'Y FX-3014A



INPUT PCB ASS'Y FX-6017A

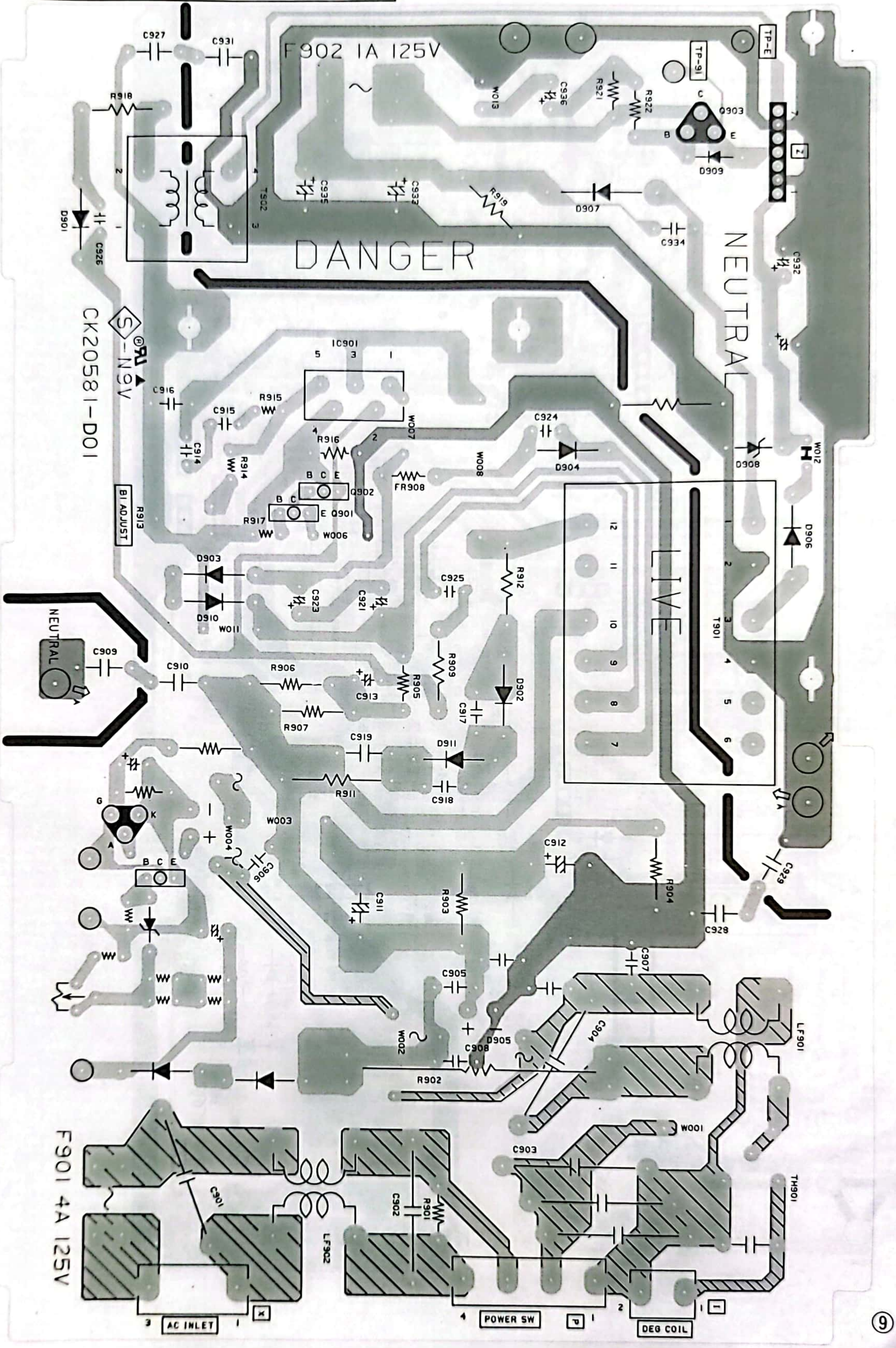


POWER PCB ASS'Y FX-9014A



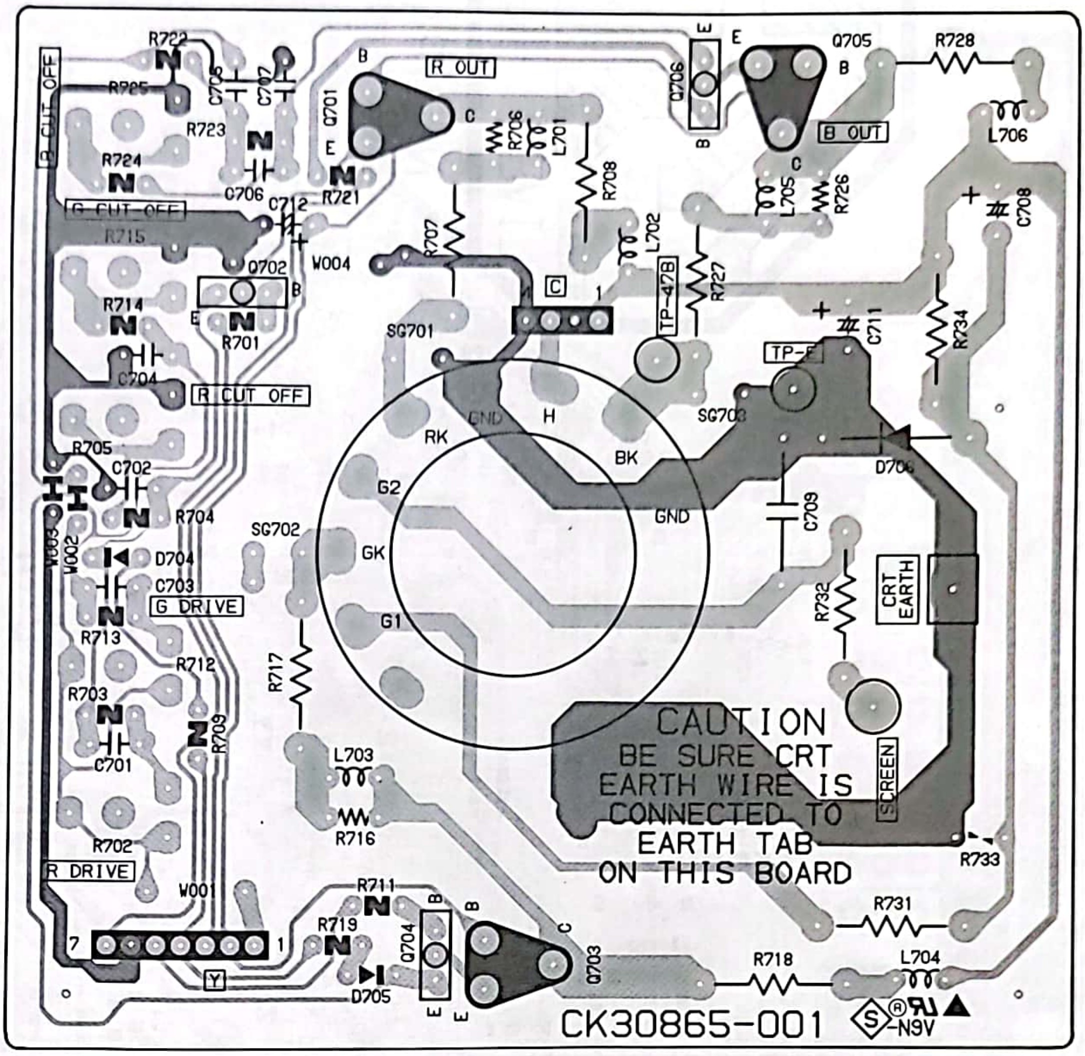
MAIN PCB ASS'Y FX-1030A

POWER PCB BACK PATTERN ➡ TOP



CRT SOCKET PCB BACK PATTERN

↑ TOP



INPUT PCB BACK PATTERN

↑ TOP